

# The IRON AGE

November 27, 1958 A Chilton Publication The National Metalworking Weekly

Beginning a New Series On

## Industry's LATEST SPENDING PLANS



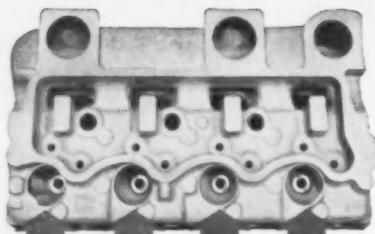
**A Special Survey of Metalworking Capital Appropriations — P. 33**

For Market Planners:

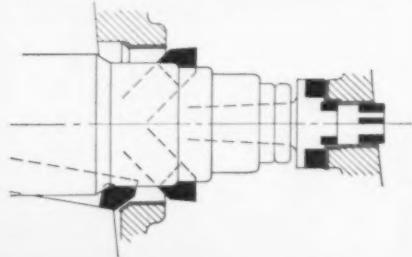
Digest of Market Trends — P. 19

Weld "Countdowns" Help — P. 65

Digest of the Week — P. 2-3

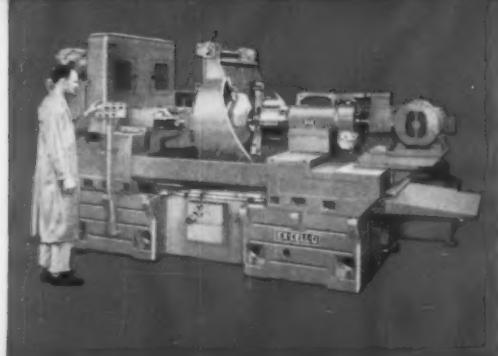


**MACHINES 21 CYLINDER HEAD SURFACES IN ONE PASS WITH DEPTH OF CUT BETWEEN  $\frac{1}{8}$ " AND  $\frac{3}{16}$ "**  
Rough castings are bored, plunge-faced and chamfered at a rate of 18 parts per hour. Tooling is shown below.



**RIGHT:** Style 771 machines both 4-and-6-cylinder tractor components. As cycle starts, table rapids to left, spindles rotate and feed traverse begins. At end of stroke, table rapids out to clear tooling; fixture indexes, cycle repeats for second set of holes.

**BELOW:** Double-end Style 772 performs multiple machining operations on tractor gear case cover.



# NEW!

## Heavy-Duty Precision Boring Machine

From base to bridge-top, Ex-Cell-O's new Style 771 Precision Boring Machine is engineered to keep pace with changing production needs and built to give years of precise profitable performance.

A specialist in fast, heavy-duty work such as the multiple machining operations detailed at left, the Style 771 (and the companion double-end Style 772) provides ample work space for complex tooling setups and bulky fixtures.

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## Its Job is to Help Produce Power

As the public utilities race to keep up with demands for more and more power, forgings like this become increasingly important. The one you see here is a steam-turbine spindle, and it will soon be doing its part in the large-scale production of kilowatts.

Bethlehem press-forged the spindle from an alloy-steel ingot containing molybdenum, chromium, nickel, and vanadium. Then the Bethlehem machine shops took over and worked carefully to exacting

specifications. When ready for shipment, the spindle weighed 28 tons; was 18 ft 6 in. long.

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THE IRON AGE

November 27, 1958

Vol. 182, No. 22

# The IRON AGE

November 27, 1958—Vol. 182, No. 22

## Digest of the Week in

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#### CAPITAL EQUIPMENT

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strings following ingot rate rise.  
Builders' production levels will re-  
flect pickup soon. P. 21

#### SALESMEN'S TIME

Getting More From It—At one  
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are classified according to volume,  
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#### BETHLEHEM MERGER

No Soap—Federal Judge Wein-  
feld last week banned the proposed  
merger of Bethlehem Steel Corp.  
and Youngstown Sheet & Tube. He  
ruled it would "substantially lessen  
competition." P. 25

#### STANDARDS

Do They Pay?—The 1958 ASA  
conference stuck to hard facts in  
probing the problems of financial  
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Detroit Sees the Light—Inevi-  
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production. It's the only remaining  
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Takes the Offensive—Veteran

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\*Plastics Set for Spending Spree

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\*Skull Furnace Is Versatile

\*Conveyor Runs Structural Through  
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\*New Spray Aids Buffing Quality

\*Design Welded Machine Parts for  
Strength and Economy

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\*Automotive

\*Washington

\*West Coast

\*Machine Tool

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\*The IRON AGE Summary

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# Metalworking



political expert warns that business can expect rough handling by the new Congress. P. 47

## DEPRECIATION SCHEDULES

**Bulletin F May Die**—Sixteen-month effort by the Treasury to revise Bulletin F has hit a snag. Before going ahead the government may quiz machine builders and users. P. 51

## FEATURE ARTICLES

### INSURE QUALITY WELDS

**With Countdown List**—Instead of holding off inspection until the very end, here's a firm that starts its inspection before the plate material leaves the supplier's mill. The stainless parts destined for a reactor cooling system get checked at each stage of production. P. 65

### SKULL FURNACE

**A Versatile Tool**—Ideal for melting reactive metals and special alloys, the skull furnace eliminates the ceramic crucible. Other advantages are speed, freedom from contamination and a built-in vacuum system. Higher temperatures extend the range of refining and degassing metals. P. 69

### PAINT LINE CONVEYOR

**For Structural**—The problem is one of handling heavy objects in a wide array of shapes and sizes. The answer is in a conveyor with diamond-shaped load bars. The

bars allow almost complete spray coverage from both above and below without turning the part. P. 70

### BUFFING

**New Spray Aids Quality**—Spray system applies buffing compound to improve buffing action and reduce buff wear. It allows an appliance maker to get a quality finish without paying penalty of high costs. P. 72

### WELDED MACHINE PARTS

**For Strength and Economy**—Weldments of low-cost rolled steel section joined by arc welding offer the combination of high quality and low cost. The ease with which weldment design can be changed is an important factor. P. 74

### MARKETS & PRICES

### PLASTICS SPENDING

**Expansion Coming**—Output by plastics producers will reach a new record this year. 1959 looks even better. The industry will resume spending for new equipment, dies, and molds. P. 23

### NEXT WEEK

### LUMINOUS-WALL FURNACE

**Low-Cost Idea**—It's a new concept for heating furnace loads quickly and efficiently. The luminous wall consists of a porous refractory through which gas-air mixture passes. Next week's technical feature tells how the method cuts fuel costs by 60 pct.

**EARMARKED FOR SPENDING:** Changes in capital appropriations by the various metalworking industries are highly significant for marketing studies and planning. In this issue begins the first IRON AGE quarterly report on funds actually appropriated by 36 major segments of metalworking. P. 33

### AUTO PRODUCTION RACE

**Full Speed Ahead**—Strikes and shutdowns cost the auto industry thousands of potential new car sales. Now it's an old fashioned production race to get cars into dealer showrooms. P. 31

### FARWEST EXPANSIONS

**Checklist for Sales Calls**—West Coast metalworking firms are getting set for a sales upsurge. They are building new plants and enlarging existing ones. Here's latest rundown on Farwest area. P. 49

### STEEL LOOKS BETTER

**Signs of Strength**—The steel market may be marking time at the moment. But there's an undercurrent of strength that could break into the open soon. P. 107

### CAN PRICES LOWERED

**Bold New Approach**—American Can expects its new price policy will save customers \$9 million a year. Method sets up individual f.o.b. prices for each type can. P. 108





## B&W's Mr. Tubes

### helps you engineer for profit

When a product involves the use of steel tubing, B&W's Mr. Tubes can help you *engineer for profit*—help you reduce costs and make a better product. Take for instance an application involving the use of alloy mechanical tubing.

From the standpoint of economics, there can be only one tubular product which is best suited for your particular fabrication procedures and optimum end use service. The choice of that tube involves the questions of the grade of steel itself, its heat treatment and mechanical properties, whether it should be electric furnace steel or the open hearth grade, whether it should be a hot finished or a cold finished tube. Other factors include surface finish, tolerances and the economical quantity and type of length.

These are but a few of the many considerations involved in buying the right tube for a job. Next time you are planning a product in which tubing is used—call in Mr. Tubes, your B&W district sales representative—and make him a member of your product planning team. He can help you as he has helped others. Write for Bulletin TB-361. The Babcock & Wilcox Company, Tubular Products Division, Beaver Falls, Pa.



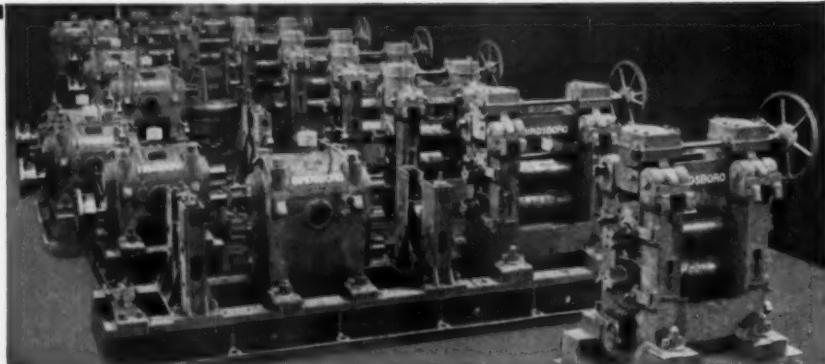
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Seamless and welded tubular products, solid extrusions, seamless welding fittings and forged steel flanges—in carbon, alloy and stainless steels and special metals.

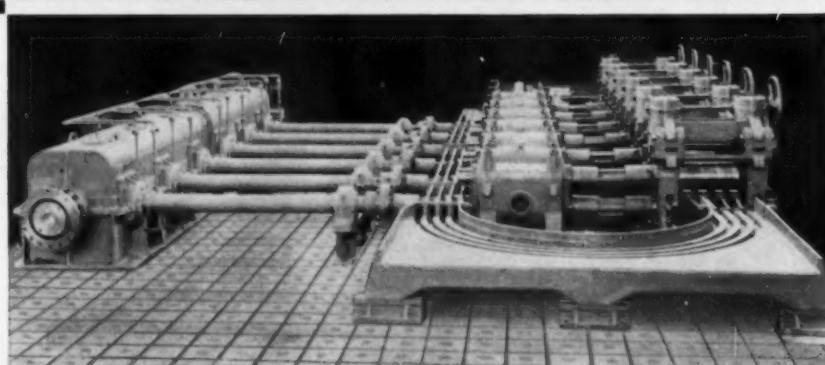
# Put Your Steel Production Ideas Into Action Through **BIRDSBORO**

Right now, you have ideas on how production from your mill can be increased, quality improved or savings made. This may be the time to think about putting them to work. When you do, call in BIRDSBORO, specialists in *customized* mill machinery. Direct our large and varied facilities toward *your* goals. Take advantage of production experience that has included many of the most important advancements in the industry. The first step . . . contact your BIRDSBORO representative.

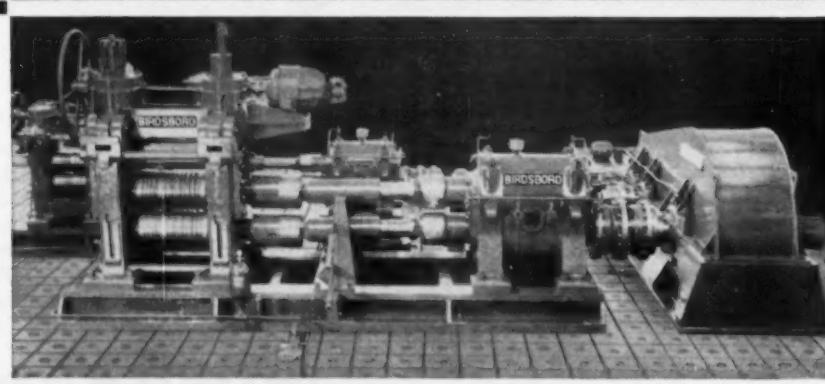
**Roll Stands and Pinion  
Stands for 10" Rod Mill**



**12"-6 Stand Continuous  
Rod Mill and Drive**



**16"-10" Bar Mill**

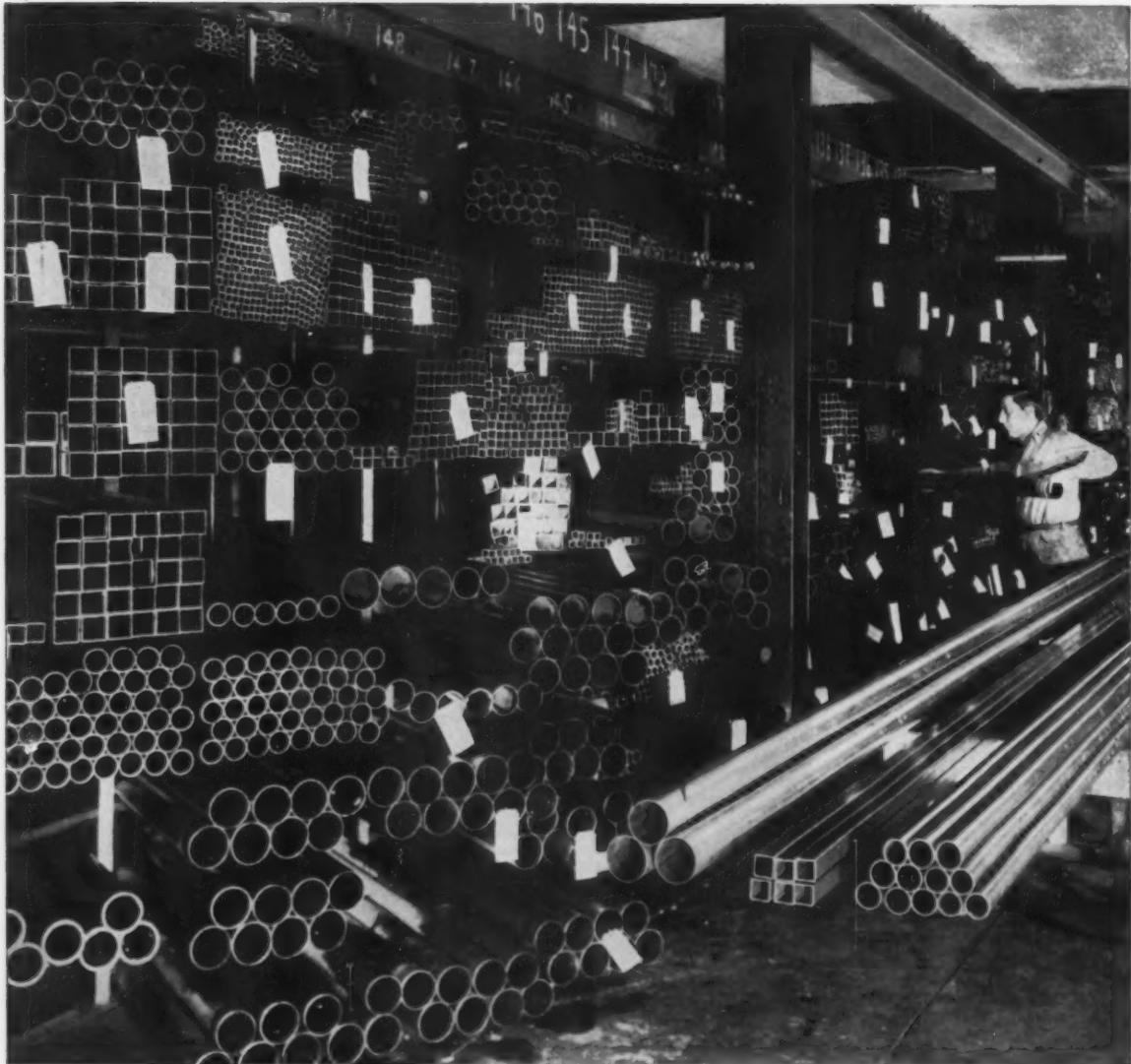


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It pays to analyze your tubing requirements with a Ryerson tubing specialist. He is well qualified to help you select the right tubing for your purpose from Ryerson's diversified stocks.

The Ryerson specialist knows tubing—knows what will work best and why. In many cases, he can

recommend a type that will do a better job for you—perhaps a newer type that will save you money, either in first cost or in the cost of using it.

Ryerson carries the nation's largest stocks of steel tubing—all of

certified quality—and uses the finest modern equipment to cut to your exact specifications. And Ryerson delivers fast—one tube or a thousand.

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# Part Old and Part New: A Balanced Success Formula?

Despite our progress in personal communications, there are still many blind spots. Some of the most painful involve older management and the young bucks.

The young bucks think they are neither young in the sense of being immature or bucks in the sense of having a lot to learn. But they keep these thoughts to themselves as they say "yes sir" and at times "no sir."

Older management believes there is much to learn, that things aren't as they "used to be" and that there is a big change in the young fellows of today. Not all, but many, feel there is quite a difference between them and those who will take over later.

This attitude is not entirely the normal feeling of those about to take it easier. It may be a sharp insight into what today's young bucks will come up against sometime in the worrisome future. Just how right is that attitude?

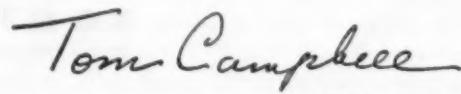
This is the place where communication blind spots operate against the young and the mature. It is where present management may change its mind on its candidate. It is the place where the youngster may stray from the "club" and find a new membership elsewhere.

Courtesy, well being, and conformism often produce unconscious deception. Also, many young management people clam up because they think it might hurt their progress to speak up. Right or not, this is done.

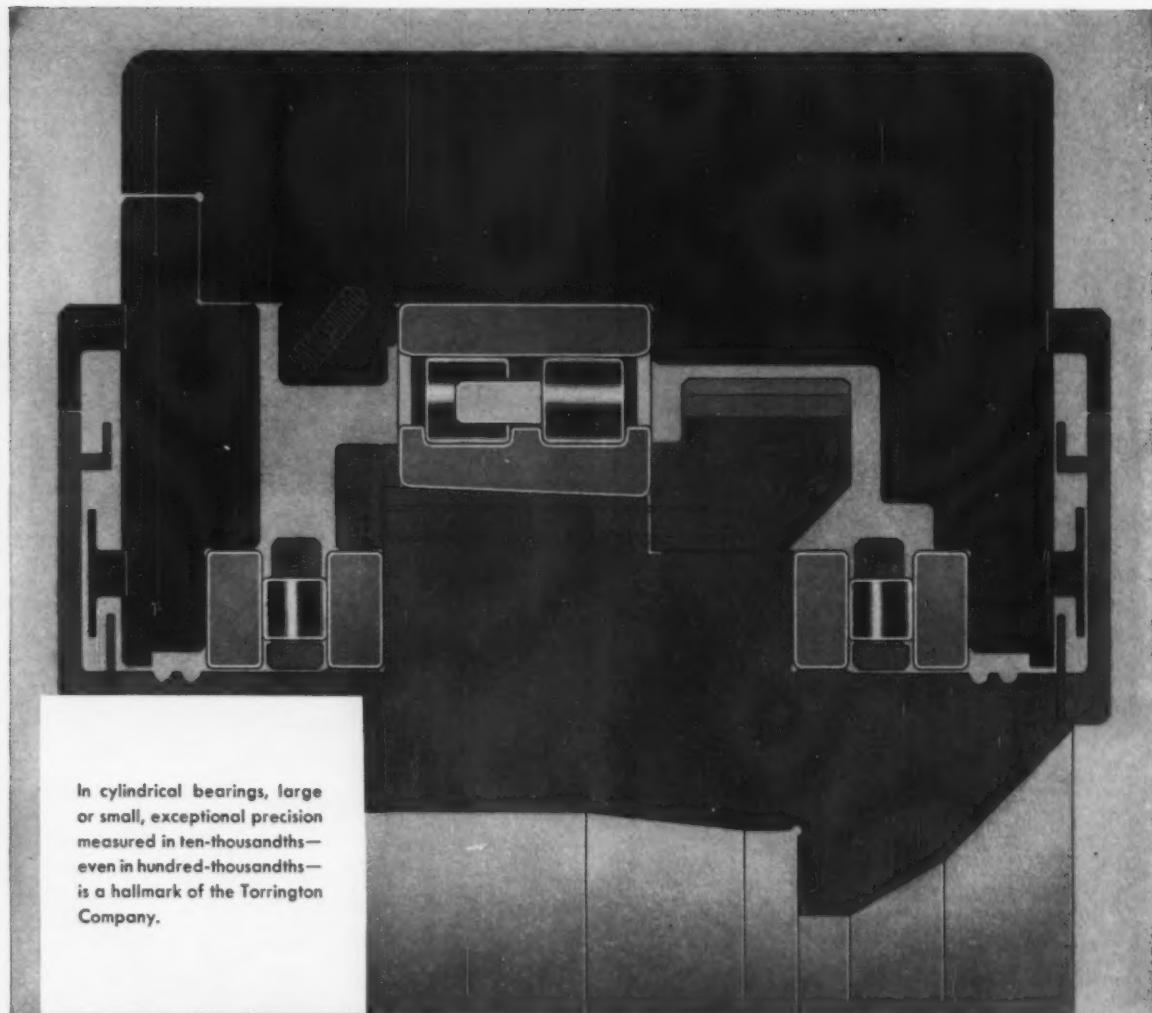
A big problem facing young fellows today—and by young we mean younger than the boss—is how to get ahead and still keep in balance. Assuming that communications are poor, that judgments aren't always what the textbooks say, and that luck plays its part, do old-fashioned methods still help out?

Let's agree that old-fashioned hard work, proper listening, hard-headed decisions and intelligent caution are good. Then how do we square them with the "new" requirements such as: Risk among security labels, facing facts of inflation instead of the wishful thinking, accepting "credit" living instead of deplored it, doing things "differently" and finally—taking a less intensive attitude in the tough job of just living.

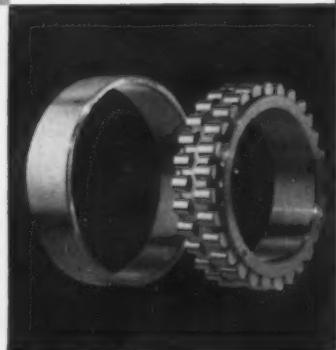
Old and young will never completely understand each other. But to the young: Retain at least a third of the old ideas, mix them with two thirds of the new and you have it made.



Editor-in-Chief



In cylindrical bearings, large or small, exceptional precision measured in ten-thousandths—even in hundred-thousandths—is a hallmark of the Torrington Company.



## Turns true within three "tenths"!

To the engineer, that means these large Torrington Cylindrical Roller Bearings have a total radial runout of only .0003"—three ten-thousandths of an inch! To anyone, that means ultra-precision.

These are spindle bearings custom-built for Gisholt Machine Company's center drive lathe. The tapered bore, two-row radial roller bearing is 44.2500" OD, capacity 189,000 pounds at 100 rpm. Face runout is held to .0005". Each of two cylindrical thrust bearings used is 38.4700" OD, capacity 105,000 pounds at 100 rpm. Diameter of rollers in any one bearing is held within one-half "tenth"—.00005".

This close approach to perfection is made possible by specialized equipment and superior workmanship, which go into the manufacture of every Torrington Bearing, large or small. Of course, not every application requires such ultra-precision. But each bearing requirement is given the extra measure of care that makes Torrington quality a byword in industry. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

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## Study Adhesives for Metals

Among the results of research on organic-base adhesives in metal-to-metal bonds was found an unusual effect in aging. Aluminum bonds, aged at 300° and 400°F under stress, actually increased in strength by as much as 30 pct when later tested at —70° and +80°F. Cycling of aluminum-stainless bond between 450° and —55°F produced no evidence of failure caused by thermal shock or differences in expansion between adhesive and the base metals.

## Protection for Molybdenum

A composite electrodeposited coating of nickel over chromium protects molybdenum from oxidation at high temperatures. The two-layer coating is considered promising for use on turbine blades and similar parts exposed to high temperatures. Studies show that the coating prevents oxidation for over 1000 hours at 980°C and for over 300 hours at 1100°C.

## New Machines Work Plastics

Foreseeing a growing world demand for capital equipment in the plastics field, German manufacturers are pushing research on new plastic molding machines and extruders. Already on the market are units for continuous extrusion of 10-in. diam plastic pipe and sheet in widths up to 5 ft. Aim is to produce high-speed small-sized units for economic production runs.

## Powdered Steel Strip

Production of steel strip from iron powder continues to make good progress. While it may become an important process in a short time, much development work is still needed. Answers to capital investment questions depend on continued research programs.

## Breakthrough in Insulation

A series of super insulations up to 26 times more efficient than standard vacuum insulations is capable of holding liquid oxygen for indefinite periods. Using these insulations, the developer

is able to build liquid oxygen storage tanks for missile stands that will hold the volatile liquid for months or even years with little loss. Building of liquid hydrogen and helium storage containers without liquid nitrogen coolant is now possible.

## Define Activation Analysis

Activation analysis is a method by which minute quantities of elements—sometimes as little as one part per 100 billion—can be detected through radioactivity. It's a service that can benefit firms concerned with control of trace elements. Although recognized in recent years as a research tool, the process is now available as a full-scale service.

## Quality Aluminum Sheet

Continuous annealing of aluminum sheet may have reached the practical stage for one producer. There have been no announcements, but customers are beginning to receive shipments of the fine-grained product. Major aluminum producers have long been working on continuous annealing as a means of improving grain structure and drawing qualities.

## Improve Openhearth Design

By changing the design of the ends of two openhearth furnaces, a British steel producer has increased furnace output by 10 to 15 pct. The conversion of the ends, by setting them square instead of at the customary angle, reduces amount of refractories required and saves 10-pct in fuel. The new design converts the furnace into a streamlined box with open ends leading into a single uptake, the full width of the furnace.

## Missile for Foot Soldier

Search is on to find a powerful, lightweight missile for the foot soldier. Users would fire it against tanks, bunkers, or attacking planes. While the weapon must be light enough to be carried in rough terrain, its wallop must be lethal. Accuracy is a must too. Construction has to be simple to lessen the danger of malfunctions, but rugged enough to reduce need for maintenance.



## "WEIRKOTE'S ZINC COATING STAYS SKINTIGHT. NO PEELING OR FLAKING—CAN ELIMINATE DIPPING OR PLATING AFTER FABRICATION!"

- Q. Sure, but what happens on the tough jobs—like deep drawing or crimping?
- A. You can work Weirkote right to the limit of the steel itself. And as I said, no peeling or flaking.
- Q. Then where's the miracle? We tried galvanized before. And it struck out. Too much trouble, too much cost fixing it up after fabrication.
- A. No miracle. It's just that Weirkote's made by the continuous process which integrates zinc and steel so that the toughest fabrication won't break down the bond.
- Q. That means then that Weirkote can eliminate the need for plating or dipping to assure uniform corrosion protection for the most intricate part . . . is that the picture?
- A. Yes, that's exactly the picture . . . and with Weirkote you can free a lot of the capital, floor space and time you have tied up in plating operations.

*Send today for free booklet that details the time- and cost-saving advantages of using skintight zinc-coated Weirkote. Write Weirton Steel Company, Dept. A-8, Weirton, West Virginia.*



**WEIRTON STEEL  
COMPANY**

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a division of

**NATIONAL STEEL CORPORATION**

## LETTERS FROM READERS

### Workmanship

Sir — Congratulations on your fine editorial in the Nov. 6 issue on "Pride of Workmanship—What Has Happened to It?"

This covers a situation about which all of us should be greatly concerned and I think it covers it very well.

Are reprints available? If so, we could make good use of 18 copies.—J. D. Hagans, Sales Mgr., Ohio Steel Foundry Co., Springfield, Ohio.

▪ Copies are on the way.—Ed.

### Inflation

Sir—I read with interest your article on inflation in The IRON AGE of Oct. 2 (More Inflation is on the Way). May I call your attention to the fact that your reporter misinterpreted some of my recent statements.

The confusion seems to stem from a typographical error. You quoted me as saying "the Consumer Price Index is not tending to stabilize." What I said was that



**"That's the third mistake you've made this month. Who do you think you are—me?"**

the index is "now tending to stabilize." I do not think it will go down very much in the near future, but neither do I think it will go up very much.

I must also point out that the cost item of \$7,500,000, which you mention, refers to the total budget of the Bureau of Labor Statistics for all its statistical work, including employment, hours of work, earnings, wage rates, productivity, housing, industrial injuries, etc. The total cost of all the price work of the Bureau is only about one-fifth of that amount.

You are right in saying we are concerned about the need for accuracy in the price indexes—both consumer and wholesale. The entire wage and salary bill of the nation's economy is influenced to some extent by the Consumer Price Index. In addition, many billions of dollars worth of contracts of business concerns are based on the Wholesale Price Index. These are the reasons we believe every possible effort should be made by the Government to insure the highest degree of accuracy in the price indexes.—Ewan Clague, Commissioner of Labor Statistics, U. S. Dept. of Labor, Washington, D. C.

### Air Tool Silencer

Sir—This is in reference to an item in the Oct. 2 issue on "Diffuser Silences Air Tools." We would like to have more information on this subject, the manufacturer's name, etc.—L. Allen, Mgr. of Works, Fabricated Steel Construction, Bethlehem Steel Co., Pittsburgh, Pa.

▪ For further information contact Mr. K. H. Kuhlen, Amplex Div., Chrysler Corp., Detroit.—Ed.

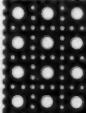
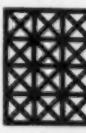
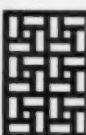
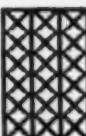


## Top-Hat Quality IN Perforated Metal

The popular Diamond Perforated-metal patterns shown above are only a few of the many illustrated and described in our 32-page Catalog No. 39. All of these standard patterns are available in a wide range of unit-opening sizes and we are always equally pleased to quote on original designs of any type or size.

Catalog 39 also illustrates and describes our high-quality lines of *Ornamental Cane*, Perforated-Metal Sheets for Acoustical installations and *Heavy-Duty Architectural Grilles*. Write, today, for a free copy.

Correspondence is especially invited regarding ANY requirement for perforated-metal panels or parts. We are equipped to fabricate special sections to any desired extent and welcome opportunities to make money-saving suggestions.



**DIAMOND MFG. CO.  
WYOMING WILKES-BARRE AREA PA.**

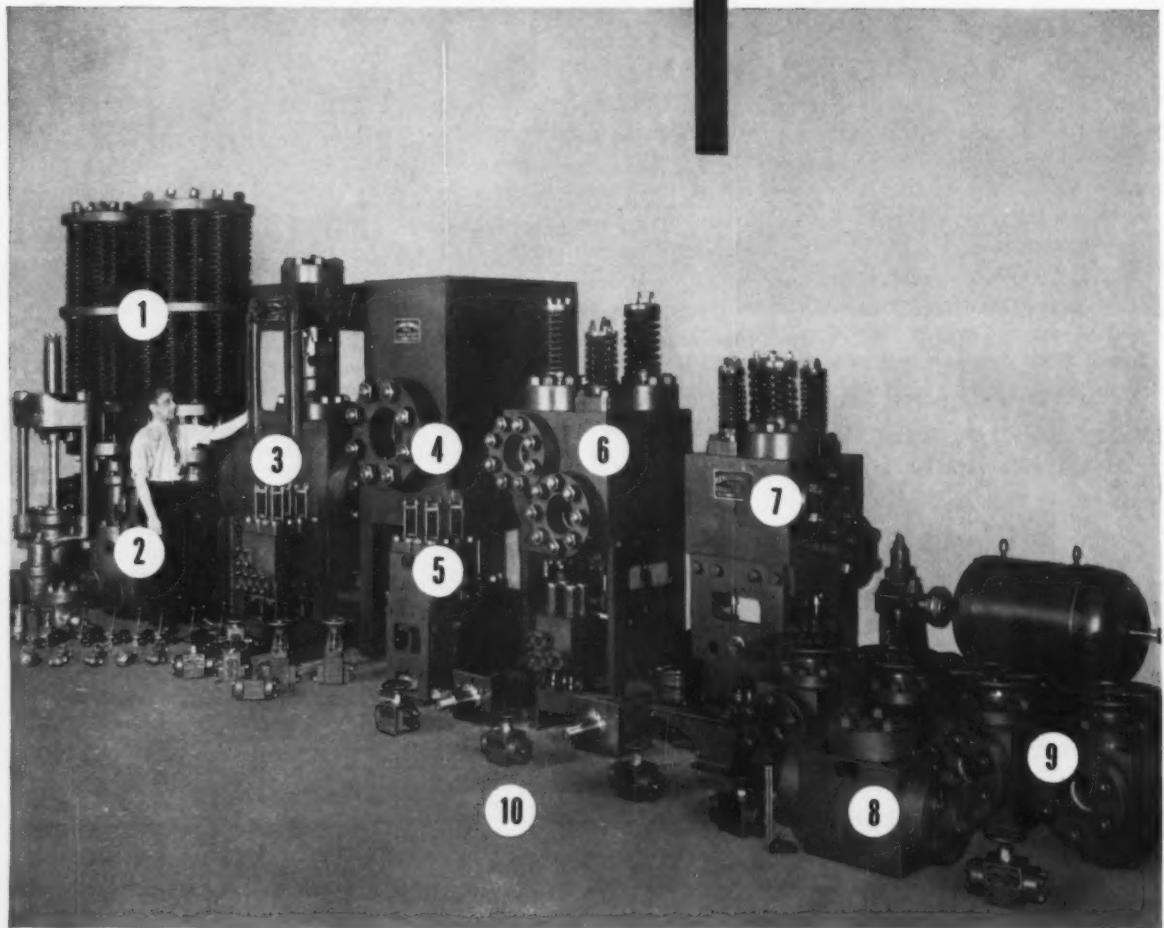
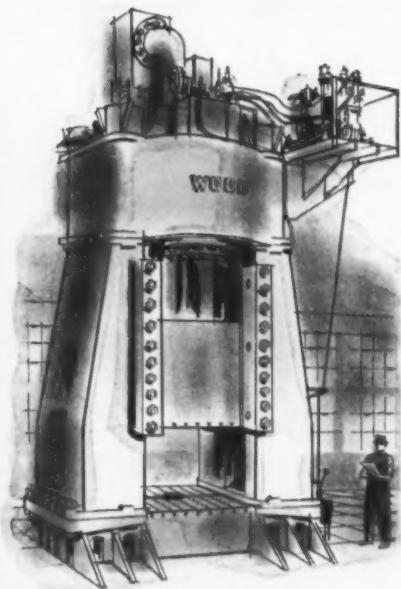
Manufacturers of DIAMONTEX, the Perforated Metal Lay-in Panel for better Acoustical Ceilings. New Bulletin No. 47 gives complete illustrated information. Write for free copy.

## Every valve you need for a complete hydraulic system...from WOOD

Need a special valve or a complete hydraulic system? Call on R. D. Wood Company for help from men who know their high pressure valves. Take the line-up below, all Wood valves from one hydraulic forging press installation, working pressure 4500 psi. Note the broad range of sizes and types, from the small Stop and Check Valves to the large 6" x 8" Shock Alleviator Valves. They have been developed from years of experience in designing and building hydraulic equipment. Whatever your requirements, our engineering staff can design and apply the correct valves to do the job. Write today for complete information contained in the Wood brochure, "High Pressure Hydraulic Valves."



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**1.** 6" x 8" Shock Alleviators **2.** 2 1/2" x 4 1/2" Twin Tilting Valve **3.** 9" Accumulator Shut off Valve **4.** 9" Accumulator Safety Shut off Valve **5.** 1 1/2" Mandrel Gear Control Valve **6.** 6" Control Valve **7.** 4 1/2" Control Valve **8.** 4" Check Valve **9.** 4" Stop Valves **10.** Misc. Stop, Check and Control Valves

## FATIGUE CRACKS

### Two New Features

This week we introduce two new features, each designed to keep readers up-to-date on metalworking changes.

Our first quarterly survey of capital appropriations by metalworking firms appears on p. 33. Covering 36 industries, it was conducted exclusively for IRON AGE by the National Industrial Conference Board.

By indicating demand for capital goods it can help management: (1) gage the overall course of the economy; (2) check on the industries which are the best prospects for capital goods orders; and (3) compare individual spending programs with those of industry in general.

It's designed to include data on spending plans never before available in detail and we recommend it for your careful study.

### Market Planning Digest

Our second newcomer — the Market Planning Digest—appears on p. 19. A weekly feature, it will include information on sales trends, pricing, market growth, and business changes which will influence the industrial future. The Digest should be valuable for either background knowledge or marketing action.

### Technicolor Chaos

Even as late as 1927, reports the American Standards Assn., color-blind motorists had as good a chance as anyone of interpreting traffic signals.

Because there was little standardization on lights drivers could choose between flashing beams of purple, orange, blue, green, yellow,

and red as they drove from state to state.

"Green" meant stop in some states and "Go" in others. Red, not yellow, was the color for caution in New York City.

And with some signal towers as high as two-story buildings a motorist needed to be a giraffe to see them.

Order came out of chaos through two national codes—one on colors for traffic signals, and the other on street signs, signals, and markings.

The moral: Standardization is vital. And you'll find out why standardization pays off by reading the article on p. 26 of this issue.

### Puzzler

Many thanks to James L. Funk, Frazier-Simplex, Inc., Washington, Pa., for this one:

John Brown decided to fill a ten gallon container with water. He had a one gallon bucket. It took him 3 minutes, 10 seconds to fill and pour this bucket in the container. (Assume this operation to be at a linear rate of time.)

After he had filled and completely poured his first bucketful, the pressure of the water dislodged debris in a small hole in the bottom of the container which leaked  $\frac{3}{4}$  of a pint of water in 4 minutes, 45 seconds.

Immediately after pouring his tenth bucket of water in the container, a defective spigot on the bottom of the container broke, leaking 2 quarts of water in 2 minutes, 32 seconds. He continued filling until the water reached the top of the container. How many buckets of water did he pour?

Incidentally, he stumbled after pouring his sixth bucket, losing 1 minute, 35 seconds.

# Atlas

### PICKLE TANKS END COSTLY REPLACEMENT

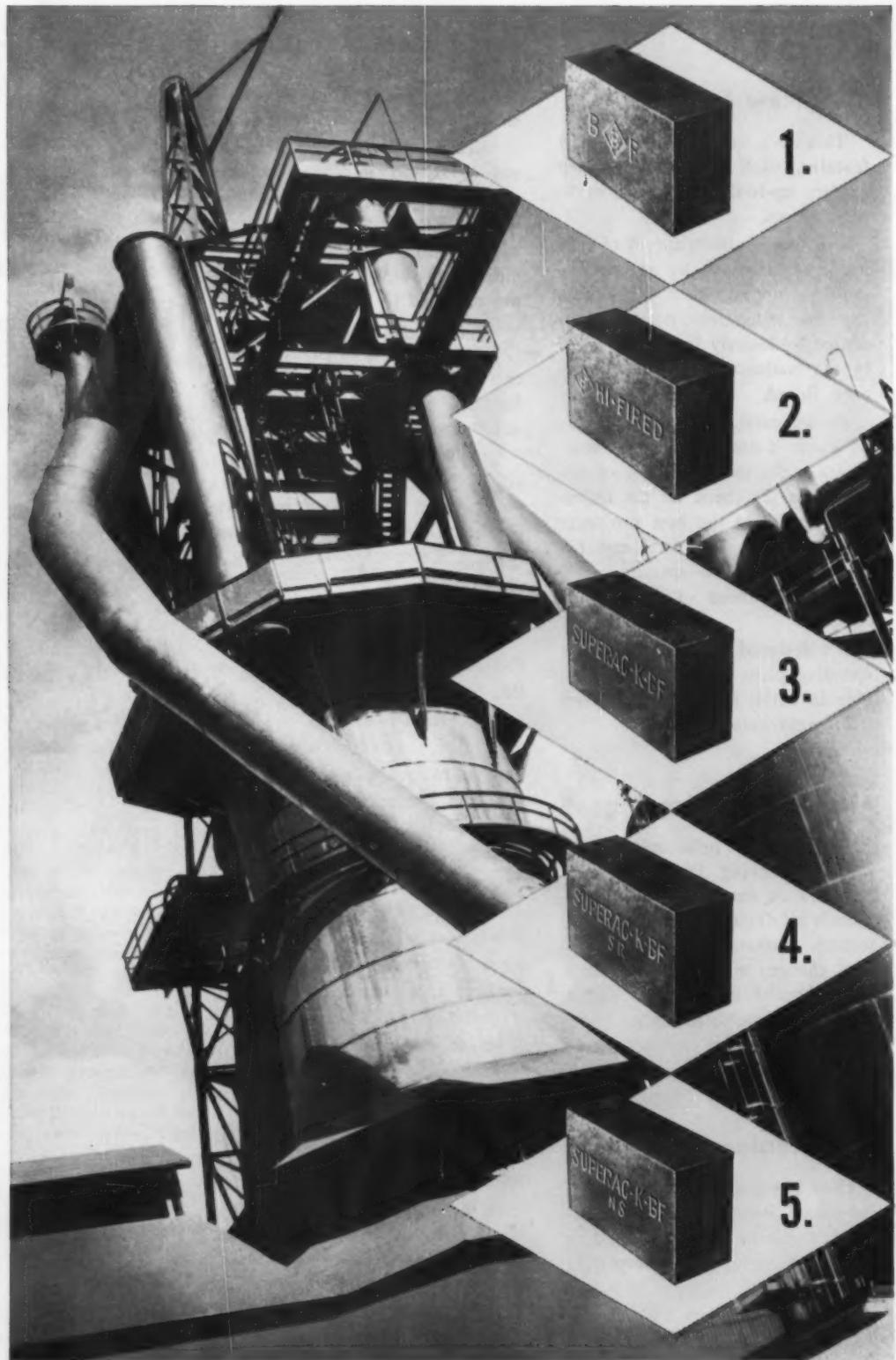


### ... outlast wood 10 to 1!

Wooden tanks, because of their inherent instability, create a continuous maintenance and replacement problem. Atlas construction uses corrosion-resistant linings and acid brick joined with the proper corrosion-proof cement to end maintenance problems and give a service life of 10 to 1 over wood. Atlas tanks provide positive corrosion protection.

As there is no drying out or change of dimensions, Atlas tanks will not leak. In addition, they are engineered to withstand hard physical abuse from shifting loads. They resist all pickling solutions even when used at today's elevated temperatures. Atlas pickle tanks put an end to your costly replacement problems. Write for Atlas Bulletins 5-2 and C-1.

**ATLAS**  
**MINERAL**  
PRODUCTS COMPANY  
**MERTZTOWN, PENNSYLVANIA**



# GREFCO OFFERS 5 SUPERIOR BLAST FURNACE BRICK

To meet the increasingly specialized demands of modern iron making, GREFCO now offers five different outstanding blast furnace bricks, each tailored to meet your requirements.

**1. OLIVE HILL-BF** — High duty fireclay brick for blast furnace linings. Now and for many years a standard of the industry.

**2. OLIVE HILL HI-FIRED** — Especially fired at high temperatures to combine the advantages of OLIVE HILL-BF with greater resistance to carbon disintegration.

**3. SUPERAC-K-BF** — The general purpose, high fired, superduty blast furnace brick having properties tailored to meet a variety of service conditions.

**4. SUPERAC-K-BF (SR)** — The high fired, superduty blast furnace brick with exceptional density, strength, and slag-resistant properties. Used frequently in bottom blocks and wearing plate areas.

**5. SUPERAC-K-BF (NS)** — The high fired, superduty blast furnace brick with exceptional resistance to spalling. Sometimes preferred for stack linings.

Your GREFCO representative will be glad to discuss with you the GREFCO blast furnace brick best suited to meet the conditions in your furnaces.

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REFRACTORIES  
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A COMPLETE REFRactories SERVICE

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## For your metals data file . . .



### Send for this informative brochure!

Whether your approach to selection and purchasing is "Value Analysis", "Purchasing Research", "Cost Reduction Buying" —or just plain "wise buying", the need for background information on materials is apparent to both designers and purchasing people.



Consult a malleable foundry engineer at the drawing board stage

This new publication—"Standard and Pearlitic Malleable Iron Castings win approval under Value Analysis"—is now available to you. It shows you how the use of Malleable will pay big dividends. Just write for the "Value Analysis brochure".



1800 Union Commerce Building

Cleveland 14, Ohio

## COMING EXHIBITS

**Power & Mechanical Engineering Show**—Dec. 1-5, New York Coliseum. (International Exposition Co., 480 Lexington Ave., New York 17.)

**International Heating & Air Conditioning Show**—Jan. 26-29, Convention Hall, Philadelphia. (International Exposition Co., 480 Lexington Ave., New York 17.)

**Western Metal Show**—March 16-20, Pan-Pacific Auditorium and Ambassador Hotel, Los Angeles. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

**Corrosion Show**—March 16-20, Chicago. (National Assn. of Corrosion Engineers, 1061 M & M Bldg., Houston 2, Texas.)

**Industrial Finishing Show**—June 15-19, Detroit Artillery Armory, Detroit. (Information: H. J. McAleer, 3171 Bellevue, Detroit 7, Mich.)

## MEETINGS

### NOVEMBER

**American Society of Mechanical Engineers**—Annual meeting, Nov. 30-Dec. 5, Statler & Sheraton-McAlpin Hotels, New York. Society headquarters, 29 W. 39th St., New York.

### DECEMBER

**Electric Overhead Crane Institute**—Annual meeting, Dec. 2, Statler Hotel, Washington, D. C. Society headquarters, One Thomas Circle, Washington 5, D. C.

**Spring Manufacturers Assn.**—Annual meeting, Dec. 2-3, Barbizon-Plaza Hotel, New York. Society headquarters, Box 1440, Bristol, Conn.

**The Metallurgical Society of AIME**—16th electric furnace steel conference, Dec. 3-5, Hotel Statler, Detroit. Society headquarters, 29 W. 39th St., New York.

(Continued on P. 17)

## EXHIBITS, MEETINGS

(Continued from P. 16)

**American Institute of Chemical Engineers**—Annual meeting, Dec. 7-10, Netherland Hilton Hotel, Cincinnati. Society headquarters, 25 W. 45th St., New York.

**The Material Handling Institute, Inc.**—Annual membership meeting, Dec. 10, Hotel Roosevelt, New York. Society headquarters, One Gateway Center, Pittsburgh.

## JANUARY

**Aluminum Window Mfrs. Assn.**—Winter meeting, Jan. 7-8, Key Biscayne Hotel, Miami, Fla. Society headquarters, 75 West St., New York 6.

**Institute of Scrap Iron & Steel, Inc.**—Annual convention, Jan. 11-14, The Waldorf Astoria, New York. Institute headquarters, 1729 "H" St., N. W., Washington, D. C.

**Society of Automotive Engineers**—Annual meeting and engineering display, Jan. 12-16, Sheraton-Cadillac and Hotel Statler, Detroit. Society headquarters, 485 Lexington Ave., New York 17.

**Industrial Heating Equipment Assn., Inc.**—Annual winter meeting, Jan. 19-20, Cleveland. Society headquarters, 1145 19th St., N. W., Washington 6, D. C.

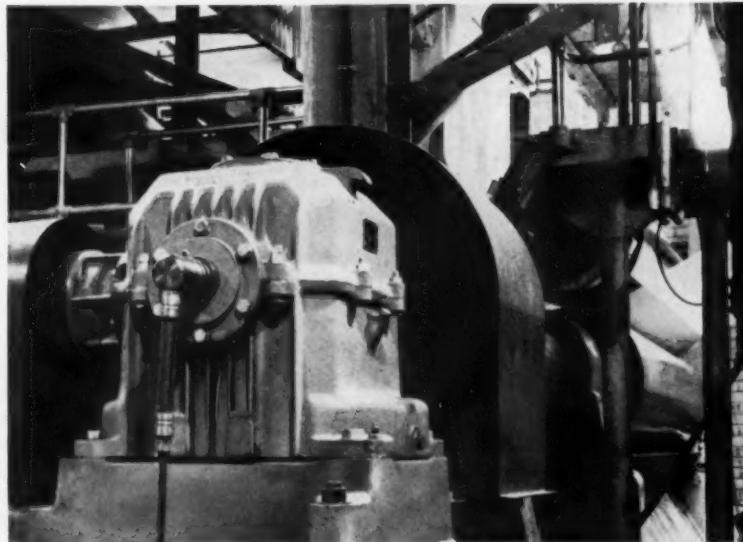
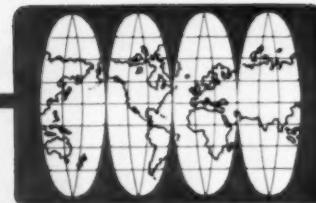
**Steel Kitchen Cabinet Mfrs. Assn.**—Winter meeting, Jan. 20, Blackstone Hotel, Chicago. Association headquarters, 1008 Engineers Bldg., Cleveland.

**Steel Shipping Container Institute, Inc.**—Winter meeting, Jan. 20-21, St. Regis Hotel, New York. Society headquarters, 600 Fifth Ave., New York 20.

**The American Boiler Mfrs. Assn.**—Mid-winter meeting, Jan. 22, Statler Hotel, Cleveland. Society headquarters, 4062 Mayfield Rd., Cleveland 21.

## DAVID BROWN

at work  
around the world



This Canadian installation is typical of the cooperative service of David Brown companies around the world. Write for details.

## ...HELPING TO SMOOTH THE WORK OF A SMOOTHING PRESS!

It always matters how you gear a new installation such as this smoothing press at Rolland Paper Company's St. Jerome, Quebec mill. The gear in this case is a David Brown 17" spiral bevel unit — one of many used on the new machines by Millspaugh, famous for paper industry equipment.

This modern right angle drive installation can run continuously, hour after hour. Its 4 to 1 ratio will transmit 200 hp at 2,000 rpm pinion speed — with a high (98%) efficiency. These compact and sturdy spiral bevel gears are made in sizes from 6" to 60" by David Brown Industries.

The popular fan-cooled Radicons are also widely used in the paper industry — specified by original equipment manufacturers. They have learned Radicon's ability to withstand extremes of temperature, dust, dirt and rain — with initial low cost, and low maintenance.

Immediate delivery on Radicons 3" to 14" all standard ratios from 5:1 to 60:1. Radicon complete drives supplied by all authorized David Brown factory branches and distributors.



**DAVID BROWN, INC.**

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Three-time ABC winner, famous bowler BILL LILLARD slams in strike after strike sending ball and pins flying against piece of TI-CO set up in pit. Close up examination by Bill shows plenty of punishment but no flaking. TI-CO's zinc coating rolled with the punch!

## BOWLING CHAMP FAILS TO FLAKE INLAND

# TI-CO!

Switch to TI-CO Non-Flaking Galvanized saves manufacturers up to 15% in Production Costs.

A well-known garage door manufacturer dispensed with plating operations—reduced costs 10%. A leading furnace manufacturer saved \$20 per thousand parts produced by eliminating cleaning and painting. A company making roller gravity conveyors cut out similar operations. These are just a few of many case histories of manufacturers who realized important savings and improved their product when they started using TI-CO Galvanized Sheets.

Whenever a product requires the strength of steel, plus corrosion resistance, Inland TI-CO is the most satisfactory . . . the most practical . . . the most economical material to use. That's because TI-CO is produced with a zinc coating that will not flake even under the toughest conditions. The coating stretches with the base metal during fabrication. Deep drawing, brake or roll forming, crimping, stamping, lock-seaming even severe spin-drawing . . . TI-CO takes them all in stride with no flaking or peeling. With TI-CO there's no need for costly dipping or touch-up. And the uniform, bright spangled finish adds to the over-all attractiveness of the product.

*If you're manufacturing or designing a metal product that requires corrosion resistance, consider TI-CO Galvanized Sheets. Manufactured in coils or cut lengths up to 60" widths, gauges 8 to 30 inclusive. Consult your local steel distributor or Inland sales representative. Write today for a free informative booklet on TI-CO.*



## INLAND STEEL COMPANY

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**LARGER METALWORKING COMPANIES** earmarked almost \$1.2 billion for capital spending during the first six months of 1958. So says a survey conducted by the National Industrial Conference Board for **THE IRON AGE**. The first of a continuing series of quarterly surveys appears in this issue. It's a valuable tool for those companies selling to metalworking.

**YOU CAN GET EVEN MONEY IN DETROIT** that carbuilders won't push small car plans. But sources close to the industry say the automakers haven't much choice. Car buyers will call the turn.

**PRODUCTION LEVEL MAY NOT SHOW IT**, but steel mill equipment makers may have put the recession behind them. One builder reports that new orders and backlog are on the rise. Output may not reflect upturn until second quarter of 1959.

**METALWORKING IS A GROWING MARKET** for plastic and vulcanized fibre materials. Of 597 plants answering an **IRON AGE** survey, 225 said they use these materials as a component of their product. More than 89 pct are bought as finished products.

**BUDGETING SALESMEN'S TIME** is paying off for a large steel company. Number of sales calls is up significantly. Salesmen are spending more time with more important customers. Time spent in the office has been cut, bad traveling habits corrected.

**A TOP GOVERNMENT OFFICIAL** foresees another big round of industrial expansion in the 1960's. Dept. of Commerce's Victor Roterus says the boom will result from new product development that began in 1954-55. He adds that new plants and equipment will be needed to produce these products in the 1960's.

**LOOK FOR MORE CAPITAL SPENDING** in the plastics industry. Industry sources say per capita consumption, now nearly 5 lb, is rising. Good prospects for equipment sales.

**COST-SAVING POTENTIAL** is spurring interest in standards. At American Standards Assn. meeting last week, metalworking firms pointed to substantial savings growing out of standardization. But U. S. still lags behind Europe in adopting international standards.

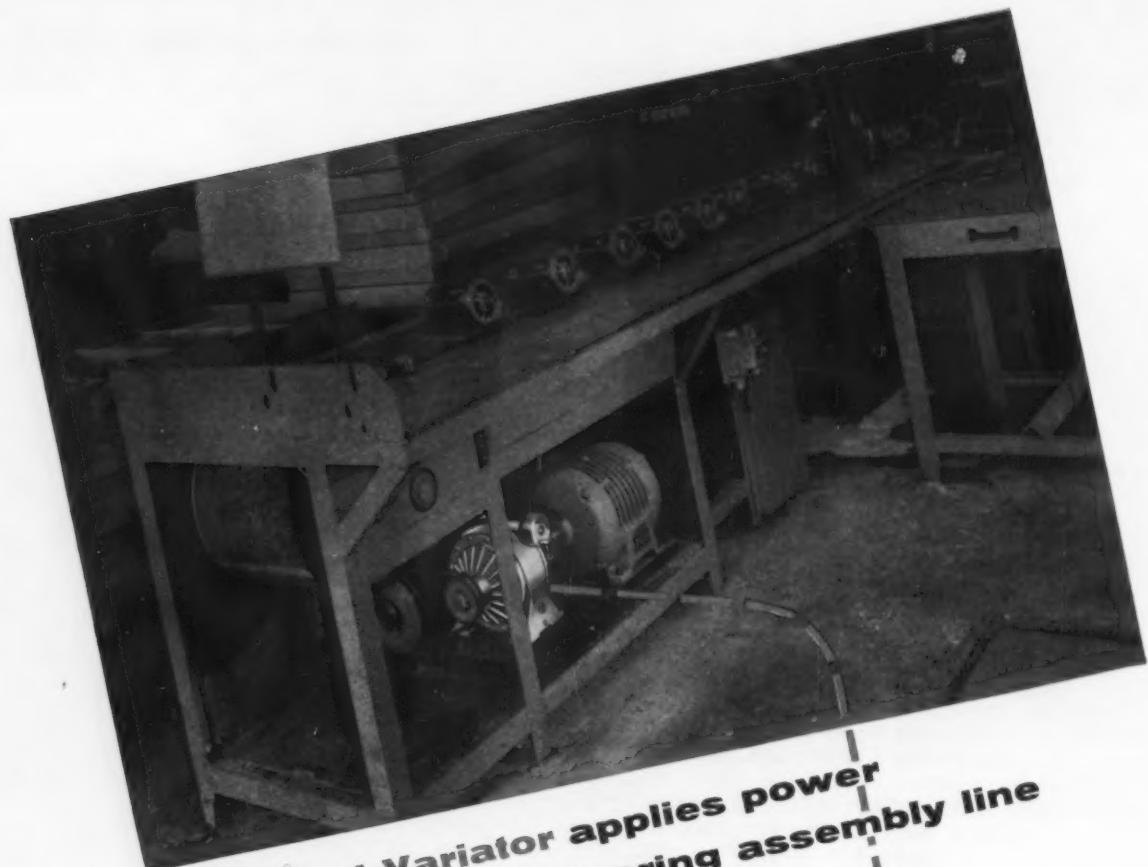
**A NEW MARKET FOR COPPER** could be in the making. Experimental house built by University of Arizona has tubed copper roof which plays key role in solar system of heating and cooling. Researchers claim 50 pct cost saving over conventional system.

**RUBBER AND STEEL ARE GOING TOGETHER** in earnest. Russell DeYoung, president of Goodyear Tire & Rubber Co., says steel is now an important raw material in tire output: "It is being added to the body of certain types of tires in volume production."

**DUCTILE IRON APPEARS TO BE** coming into its own after ten years of trial and error. Foundrymen have learned to work with it, and its applications are growing, say industry sources.

**GROSS NATIONAL PRODUCT** is now running at an annual rate of \$450 billion, calculate government economists. This beats the previous high of \$445.6 billion reached in third quarter of 1957.

**NEW ORDERS FOR SCREW MACHINE PRODUCTS** in September were the highest since October 1957. Industry spokesmen say orders have bettered shipments during the last five months.



## Cleveland Speed Variator applies power to power-steering assembly line

Providing variable speeds to the final inspection and assembly conveyor on a power steering gear generator line is a Cleveland Variator. This Cleveland was chosen for its infinitely variable Speed which enable management to obtain a desired number of units per day by merely selecting a suitable conveyor output speed.

One of 22 Variators in the plant, this installation of a Cleveland Speed Variator has a side benefit to labor and management by eliminating problems stemming from disputed conveyor speeds or counterclockwise input speeds to 1800 rpm; 2. Constant speeds; 3. Rapid response to speed changes, precise adjustments, 6:1 range; 4. Long life with minimum maintenance; 5. Ample bearing support for overhung pulleys on either input or output shafts; 6. Compact design.

Write today for illustrated Bulletin K-200 for complete specifications, sectional drawings and rating tables on the full line of Cleveland Speed Variators.

The Cleveland Worm & Gear Company, Speed Variator Division, 3282 East 80th Street, Cleveland 4, Ohio.

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# Steel Market Revival Brightens Capital Equipment Outlook

**Steel mill suppliers say mills are loosening their pursestrings following ingot rate rise.**

**Orders for light equipment, inquiries for heavy machinery are up.**

**Builders' production levels will begin to reflect pickup next year.—By G. J. McManus.**

■ A clear pattern for the recovery in industrial spending is starting to show up in steel.

Steel operating rates have climbed 25 points since July. The mills are still working at low levels but they are up 50 pct from the bottom point.

The gain has affected buying of steelmakers like this:

**1. Orders for light equipment are up sharply.**

**2. Inquiries for heavy capital items have picked up. Initial emphasis is on rebuilding and modernization. Orders are still lagging but show improvement.**

**3. Expendable items are being ordered in greater volume but the big jump has yet to come.**

**What Builders Think** — General feeling among equipment builders is that the mills are coming out of their spending slump faster than in past recoveries. Because of lead times, it will be well into the first quarter

before current orders begin showing up as shop production. Shipments in 1959 will probably be under this year's level.

But the builders see daylight. They expect to book more new business in 1959 than this year. They see orders coming soon enough to keep engineering and shop forces together. A few months ago, one maker of mill machinery was worried that it would have to dismantle its engineering department. Same company is hiring engineers today.

**Better Timing** — Part of the unevenness of the mill supply business has been due to the fact that long famines left companies under-

## What Steel Upturn Means to Suppliers

### Heavy Construction

Koppers Co., Inc.—Inquiries have picked up in the last few months. Interest centers on sintering lines, blast furnace improvement projects. Disinterest in new open-hearths and blast furnaces reflects ample basic steelmaking capacity in relation to steel demand.

### Mill Machinery

Aetna Standard Engineering Co.—Operations raised from four days a week in first half to five days currently. Order backlog is up. Recent orders include three continuous annealing lines and two continuous butt-weld mills. Rolling

mill rebuilding work is beginning to take hold.

United Engineering and Foundry Co.—A recent pickup in roll business and in volume of inquiries for machinery. "I think the up-swing could be more rapid in our business than in the over-all capital goods field."

### Heating Furnaces

Salem-Brosius, Inc.—Orders totaling \$4 million received in recent weeks. These include three soaking pits, two furnaces for butt-weld mills, slab heating furnaces, and others. New business placed in recent weeks totals \$4 million.

### Cranes

Alliance Machine Co.—Improvement in inquiries and orders. Reaction to steel recovery has been definitely faster than in past periods. Recently shipped one of the largest ladle cranes in the world. It is of 525-ton capacity.

### Refractories

Harbison-Walker Refractories Co.—Improvement has been about in line with rise in steel operations. Look for sharp upturn in refractory needs when steel operations require use of less efficient equipment. Some major rebuilding jobs are long overdue.

manned and rusty. Before they could gear up to an upswing, orders had piled up and deliveries had lengthened into years.

This time the transition may be smoother. Suppliers went into 1957 with long backlogs. They are eating into them now but the next spending spurt seems to be starting soon enough to pick up momentum from the last one.

**'59 Peak Predicted**—Some suppliers say the return swing will be fairly moderate this time. Veteran salesmen dismiss this notion. They see the traditional pattern repeating itself: Revamping jobs and fill-in work will come first. Then a few mills will come in with big new programs. Then the whole industry will follow along.

"By the end of next year, we'll be back to peak levels," predicts a top sales executive.

**Technology Speeds Recovery**—Speeding the recovery are technical improvements and competitive pressure for quality. Even though they may not need extra capacity, mills cannot afford to get behind the parade on really important technical advances.

One example of this kind of pressure is ore beneficiation. One builder reports more than 20 active leads on beneficiation systems. The contract for one large sintering plant was let a few weeks ago. Another award will be made any day now. A third is in the proposal stage.

**Role of Basic Roof** — A similar situation has developed in openhearth shops. Over 50 basic roofs have been ordered for openhearth furnaces this year. To make an all-basic furnace pay, a mill must push steel out of it. Using oxygen with a basic roof, one mill has averaged 50 tons an hour from a large furnace and reportedly has hit 70 tons an hour.

High production rates have brought a need for new handling equipment. This need has been reflected in orders and inquiries for cranes and charging equipment.

Alliance Machine Co. reports a definite pickup in orders for heavy cranes.

**How Markets Can Help** — Another kind of push can come from markets. Can makers are asking for tinplate that is continuous annealed. This demand has brought big conversion programs. Aetna-Standard Engineering Co. recently got the go-ahead on three continuous annealing lines.

A striking example of quality buying is offered by specialty mills and non-integrated cold finishers. Although the business of this group responded slowly, buying was stepped up sharply in the second half. Interest centered on straighteners, turners, and other finishing items that directly affect quality. One manufacturer of this equipment says second half bookings are double those of the first half.

**In the different buying classes, suppliers report these developments:**

**Heavy Basic Construction:** Koppers Co. reports inquiries have picked up the last few months. Improved orders are expected for 1959 but due to long lead times, actual construction may lag behind this year. Interest so far has centered on improved ironmaking operations. These take in sintering lines and blast furnace enlarging projects. There is little domestic interest right now in complete new blast furnaces and openhearts.

**Rolling Mill Machinery:** Inquiries have picked up for makers of rolling mills. Orders have improved but not enough yet to check a decline in backlog. The starting push has been marked by rebuilding work. Recent jobs include: Revamping a skelp mill; increased furnace capacity for a strip mill; revamping a plate mill.

One builder looks for this phase of the revival to spend itself quickly . . . "There is a limit to the amount of equipment worth rebuilding," he points out. He looks for big new projects to start moving.

**Outlook:** Less production next

year; more business booked.

**Heating Furnaces:** Salem-Brosius, Inc., reports a good spurt in business. Orders placed in recent weeks total \$4 million. New work includes three soaking pits; two furnaces for butt-weld lines; slab heating furnaces and others.

**Finishing and Auxiliary Equipment:** A sharp upturn in orders is reported by one maker of straighteners, turners, and other relatively light finishing machines.

**Rolls, Bearings, Bearing Chucks, Furnace Doors:** Expendable items responded slowly to the steel upturn but buying is now about in line with consumption. Mills went into the recession with heavy roll stocks. They worked these off during the slow months and borrowed from idle equipment in some cases. Stocks were kept down during the early stages of the recovery. Only recently did the mills begin to add to their replacement reserve.

**Refractories:** Refractory shipments have moved up about at the rate of steel operations. The mills are carrying short inventories but this is considered a permanent condition with today's service. As a general rule, mills are not anticipating higher operating levels in their refractory buying. Idle furnaces are relined when they are needed, not before.

Refractory men look for a big increase in mill requirements when operations go into the eighties. At higher levels mills will start using less efficient furnaces and refractory consumption will rise.

Also, a more prosperous operating level should bring major rebuilding jobs, involving blast furnaces and coke ovens. There are "thousands" of over-age coke ovens, reports a refractory man.

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**Reprints** of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., The IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

# Plastics Set for Spending Spree

**Plastics output is heading for a new record this year. 1959 looks even better.**

**New products, growing markets mean more capital spending is coming.—By K. W. Bennett.**

■ The plastics industry will push through the 1957 record of 2.16 million tons of plastic produced, to a new high of 2.2 million in 1958.

Plastics is a \$2 billion industry. Consumption runs at very nearly 5 lbs per capita annually in the U. S. and is rising. What's the significance to metalworkers?

**Dies, Molds Important** — The number of injection molding machines in plastics fabricating shops

have gone up 140 pct since 1950. Compression machines have gone up 20 pct. The value of their product has increased 59 pct in that period. There are at least 9000 injection molding machines, 1500 extrusion machines, and 15,000 compression presses in action. The equipment has come from the metalworking machinery builders.

Even spending for dies and molds for the machines listed above represent an important market. While one official of the Mold Makers' Div. of the Society of the Plastics Industry mentions \$2000 to \$3000 as a median price for molds for plastics, purchasing agents will argue that the average is higher; since they are paying as much as \$20,000 to \$30,000 for large molds capable of long production runs. The steel employed

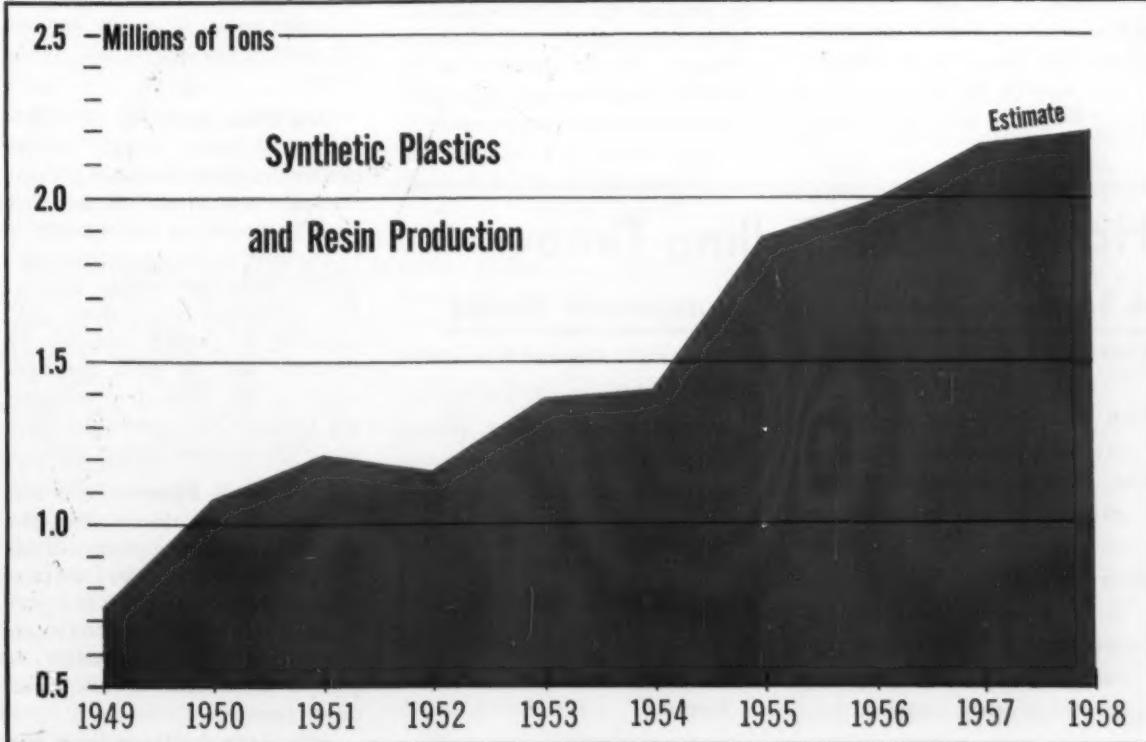
is often a chrome-nickel tool steel, and molds may go to four tons in size.

**Dollars Still Tight**—Despite the gain in total plastics output during the 1958 recession, many plastic fabricating shops operated at 60 pct of capacity. One economist believes that fabricators of the five most popular plastics averaged 65 pct of capacity in 1958.

Business is on the upswing, but capital dollars are continuing tight for the moment. Net profit before taxes declined almost 50 pct in the past two years.

**New Products Push**—Despite the "over-capacity" reported in the U. S., plastics industry spending will pick up starting next year. Research on new products will double in the next three years.

## Plastics Story: Growth Is a Habit



# Get More From Your Sales Calls

## Steel Firm Budgets Salesmen's Time, Makes It Pay

**At Allegheny Ludlum, frugal use of salesmen's time pays off in bonus of sales calls.**

**Buyers and products are classified according to volume.—By G. J. McManus.**

■ Advance budgeting of time has helped increase sales calls by 15,000 a year for Allegheny Ludlum Steel Corp.

Under a planning system installed three years ago, Allegheny Ludlum feels it has boosted sales effort significantly and also gained more effective distribution of this effort. In addition the company feels its system has provided a good yardstick for allotting and deploying sales personnel.

**Two Fundamentals** — Basically, the system involves a plan of sales calls based on customer importance and a reporting method that shows whether the plan is being followed.

The need for this type of control was explained by William B. Pierce,

sales vice president for Allegheny Ludlum, at a recent meeting of the National Industrial Conference Board.

**Growth Dictated It**—Mr. Pierce pointed out that his company's sales increased from \$30 million in 1938 to around \$300 million last year. Producing stainless, electrical and specialty steels, Allegheny Ludlum built up a network of 18 district offices with 125 salesmen and 10,000 customers.

This growth brought a need for a more organized approach to selling. Allegheny Ludlum figures that its salesmen spend only about one-third of their time in actual contact with the customer. It set out in 1955 to install machinery that would protect this contact time and promote best use of it.

**Customers Rated**—A big part of the program has been evaluation. At least once a year each salesman evaluates all the accounts in his territory. He builds up a time plan according to metal requirements.

Current accounts are then listed in three groups according to their purchases from Allegheny Ludlum. Prospective customers are listed in a separate group.

**The Details**—Opposite each customer, the salesman enters current and potential dollar sales. He then gives his estimate of the number of calls and the amount of time that should be devoted to each customer. This estimate is reviewed by the district manager and a final pattern is established. The form is held in the district office as a standard for checking subsequent activity by the salesmen.

Actual calls and time spent in the district office are reported by the salesman on a weekly form. Time is entered in 15-minute units under the product covered. There is a column for office time. No record is made of travel time, but this is indirectly available as the amount left over from contact and office activity.

**Help From the Office**—The district clerk checks weekly reports against the planned contact pattern. Salesmen are advised if they fall behind schedule on any account.

The clerk makes a quarterly summation from the weekly reports. The summation breaks down time according to product and also by customer size. It gives the time spent in the office. For comparison purposes, the summation form shows the advance contact plan.

**Clear Work Picture**—With this information, the district manager and the central sales group can tell if a salesman is giving too little time to an important account. The report shows if a man is giving too much attention to a minor product. It gives a clear view of office and travel time.

Allegheny Ludlum feels the

## How to Save Selling Time

### A Salesman Should:

**Evaluate** all accounts in his territory at least once a year.

**Plan** his time according to each account's requirements.

**List** current accounts into three groups: Large, medium, and small users.

**Determine** current and potential dollar sales for each customer.

**Estimate** the number of calls and amount of time that should be devoted to each customer.

### Management Should:

**Review** each salesman's schedule.

**Check** weekly reports against the planned contact pattern; inform salesman when he is giving too much or too little time to a customer.

**Correct** bad travel habits.

**Realign** territories where necessary.

**Cut** salesmen's office time to the bone; beef up the clerical staff instead.

whole system has yielded important benefits. For one thing it brought attention to the excessive amount of office time. Investigation showed salesmen were spending time on purely clerical functions. To correct this the clerical staff was beefed up and the job of office manager was upgraded. Office time of salesmen has been cut almost in half.

**Balance Restored** — Product attention was found to be unbalanced. One product group was receiving almost twice as much attention as its volume warranted. The product manager had made a strong pitch to salesmen. When the contact reports permitted a more realistic allocation of selling expense, the product group toned down its approach.

Bad travel habits have been corrected. Some salesmen would call on a large plant in a remote area and then fill in the day with calls on smaller plants nearby. The contact time system steers them away from unnecessary calls.

**Staff Is Enthusiastic** — The system has been helpful in finding out where more men were needed, in realigning territories and in evaluating men. According to Mr. Pierce, salesmen have found the time breakdowns extremely useful aids. Initial resentment has been replaced by enthusiasm.

"We have been very careful not to use contact time as a punitive club," he says.

**Plan Is Flexible** — He emphasizes, too, that contact plans are not rigid standards, imposed from above. The individual salesman works out his own pattern. The company has developed general standards on sales activity but it does not attempt to push conformity. There must be flexibility, says Mr. Pierce.

In terms of specific sales returns, it is difficult to pinpoint gains. Salesmen have reduced the time per call. They have increased contacts per day by one-half calls. Sales effort has increased and analysis has shown "a very direct correlation between sales efforts and sales results."

# B-Y Merger Banned

**Bethlehem and Youngstown lose first round of battle to gain sanction for merger.**

**Indications are the question will finally be decided by Supreme Court of the United States.**

■ Proposed merger of Bethlehem Steel Corp. and Youngstown Sheet & Tube Co. was banned last week by Judge Edward Weinfeld in Federal District Court in New York.

Judge Weinfeld said in an 88-page opinion:

"The court concludes that there is reasonable probability that the merger between Bethlehem and Youngstown would be in violation of Section 7 of the Clayton Act, substantially lessen competition and tend to create a monopoly in the iron and steel industry."

**Bethlehem's Reaction** — Arthur B. Homer, president of Bethlehem, said Judge Weinfeld's decision is of national importance. He added that if the Clayton Act is to be interpreted as preventing the use of practical methods of promoting real and effective competition, its effects will retard the competitive growth of American industry.

Mr. Homer said he continued to believe the proposed merger would benefit not only the companies involved but the national economy as well. He said that whether such a merger is prohibited by existing anti-trust laws is a question of judicial interpretation which can be finally decided only by the Supreme Court of the United States.

**The Reasoning** — Judge Weinfeld said that in his opinion the merger would eliminate the "present substantial competition" between the two companies in "substantial relevant markets." He spelled it out:

"It would eliminate a substan-

tial independent alternative source of supply for all steel consumers. It would eliminate Youngstown as a vital source of supply for independent fabricators who are in competition with Bethlehem in the sale of certain fabricated steel products."

**Others Would Merge** — "It would eliminate Youngstown as a substantial buyer of certain fabricated steel products."

The judge warned that the proposed merger threatened to set off a chain of mergers in the steel industry by smaller companies. Citing the argument of Bethlehem and Youngstown that the merger would provide more competition to United States Steel Corp., he said:

**Triopoly Trend Cited** — "If there is logic to the defendants' contention . . . then the remaining large producers in the 'Big Twelve' could with equal logic urge that they, too, be permitted to join forces and concentrate their economic resources in order to give more effective competition to the enhanced 'Big 2'; and so we reach a point of more intense concentration in an industry already highly concentrated—indeed we head in the direction of triopoly."

Judge Weinfeld added that the Clayton Act bars all trusts, good or bad, and that:

"The proposed merger runs afoul of the statute in so many directions that to permit it is to render Section 7 sterile. To say that the elimination of Youngstown would not result in 'a significant reduction in the vigor of competition' in the steel industry is, in the light of this industry, to disregard experience."

This is the second attempt by the two companies to merge. The first effort, in 1930, was abandoned after court litigation.

# Does Standardization Pay Off?

## ASA Sticks to Hard Facts in Probing the Problem

**Theme of 1958 conference was "What's In It For Me?"**

**Speeches and papers indicate more people have an answer.**

**But the price may be high unless more interest develops on the international level.—By F. J. Starin.**

■ They talked hard facts and stark realities at this year's National Conference on Standards of the American Standards Assn.

Retiring ASA president, H. Thomas Hallowell, Jr., set the pace in his keynote address: "During some of our past conferences . . . we have discussed many interesting aspects of standardization—theoretical, historical, legal, philosophical, social, and cultural aspects. So let's come straight to the fundamentals

today. What is there for you and me in standardization?"

Other speakers picked up the ball.

**Slackers** — There were scathing criticisms: "Three-fifths of the top 500 American firms . . . are having a free ride on the (international) standardization train."—Vice Adm. Willard A. Kitts III, manager of atomic project study, General Electric.

There were warnings: "Wherever such standards (international) are formed without our participation, and many still are, the United States loses potential customers."—Hon. Henry Kearns, Asst. Secretary of Commerce for International Affairs.

"I would ask of you to lead in international standards work now for, to be sure, if you do not, others will," declared H. A. R. Binney,

C. B., director of the British Standards Institution.

**Competition** — Mr. Binney also pointed out that the United Kingdom participates in almost every committee of the International Organization for Standardization, and holds the secretariat of more committees than any other country.

In contrast, the U. S. now participates in less than 50 pct of the committees now trying to work out international standards.

On the other side of the ledger, T. E. Veltfort, chairman of the standards council, and manager of the Copper and Brass Research Assn., reported, "As American industry becomes more informed in regard to the significance of the international work, the desire to participate has increased and probably will increase even more rapidly in the future."

One fact became apparent. Despite the need for even more work on standards, more people are saving more money with standards than ever before.

**How to Save**—In one key session, 10 members, five from various phases of metalworking, swapped stories on "How Standards Make Money for My Company."

Examples: Worthington Corp. adopted one semi-finished pump impeller shape to stock instead of 45 different finished pieces. From the new standard all 45 can be machined. Inventory and paperwork is simplified, and loss due to obsolescence is eliminated.

Grinding Machines Div., Norton Co., standardized bearing buying and inventories. Twenty-one duplications were eliminated in the initial stages. Finally, Norton found it was able to reduce stocks from 500 to 400 different bearings, and do away with some costly special pieces.

## Metalworking Saves With Standards

The American Standards Assn. this year conducted a survey on standardization among more than 2000 companies, many of them in metalworking. Only a portion of the returns have come in to date, so a final summary can not yet be compiled. Indications are, however, that the entire American economy could save at least \$4 billion a year through standardization.

Here's how some metalworking companies used standardization to save money:

- **A maker of business machines** spends about \$90,000 a year on standards work. It estimates annual savings at \$500,000.
- **A manufacturer of electronic equipment** spends \$24,000 annually on standards to save \$125,000.
- **A division of a major lubricating equipment maker** figures it saves \$3.50 for every dollar spent on standards work.
- **Two major standards projects** of a manufacturing concern are tank design and minimum piping. Total savings are figured at \$500,000.
- **An engineering firm** saves about \$25,000 per year, mostly on engineering and drafting time, through standards. The cost is about \$2000.

## Copper May Be Key to Solar Heating-Cooling

Copper may be the key to move solar heat and cooling out of the laboratory and put it to practical use.

The Institute of Atmospheric Physics, University of Arizona, is studying the possibilities with an experimental building at Tucson.

If it works, homes in about 50 pct of the U. S. could be heated and cooled for about half the cost with conventional systems.

**How it Works**—A single insulated tank outside the building (it could be buried) stores the water which acts as energy transport and storage medium. The water is heated by the sun on its way through integral copper tubes on the roof. It is returned to the tank for supplemental heating with a heat pump when necessary, then pumped to similar tubes in interior ceiling panels.

In the summer the roof rejects heat from the system by radiation and convection. Cooled water is circulated through the ceiling panels.

Where fuel and electricity for conventional systems totals about \$400, the solar heat pump system at a maximum cost of \$200 per year, says Raymond W. Bliss, director of the project.

## New Republic Mill

Republic Steel Corp. plans to install a new four-high, 112-in. reversing hot rolling mill at the Gadsden, Ala., plant. Construction will get underway after the first of the year.

The unit will replace the current three-high mill, but will be 64 feet closer to the hot strip mill to promote more efficient operation.

In order to lose as little time as possible in the changeover, the old mill will continue to roll until the new one is ready. The company figures on losing only 10 to 14 days production.

Skelp for pipe will be rolled on the new mill from slabs to 8000 lb,

double the size handled on the old mill. Slabs for finishing on the strip mill up to 13,000 lb will be rolled, also twice what has been handled on the old mill.

## Inco to Push Stainless Consumer Items

International Nickel Co. will aim a stainless steel sales salvo directly at the consumer. It will work with 29 of the nation's largest department stores in an all-out production to sell stainless consumer durables during next February.

Theme will be "Bright New Fashions for Your Home—The Gleam of Stainless Steel."

Leading stainless producers have agreed to cooperate, and Inco predicts manufacturers of stainless consumer products will coordinate their own promotions with the overall consumer selling program.

Inco is providing sales promotional material including sales training aids, posters, publicity release material, sketches for window displays and roughs for newspaper advertisements.

**Promotion**—The nickel company will kick off the promotion with 2-page, 4-color spreads in Look and Saturday Evening Post. Stainless mills and fabricators are expected to feature ads in the same issues. Inco will also run newspaper ads and heavy radio commercials.

Program's major objective, says L. R. Larson, vice-president and general manager of Inco's general sales and marketing services dept., "is to communicate to American families the increasing availability of fashionably designed stainless steel consumer goods."

Nickel-bearing grades account for about three-fourths of stainless steel production.

## 'Play' in a Sandbox Pays Off

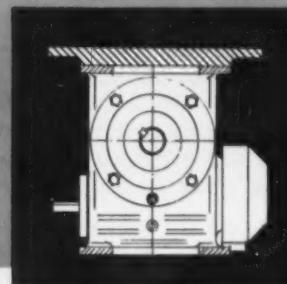
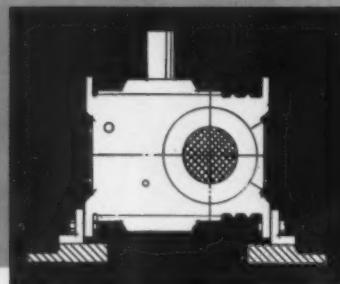
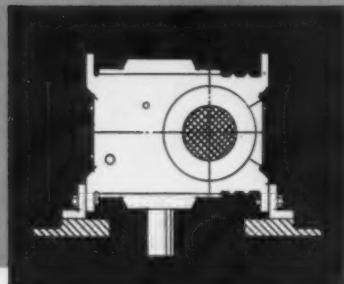
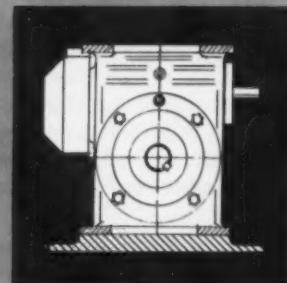
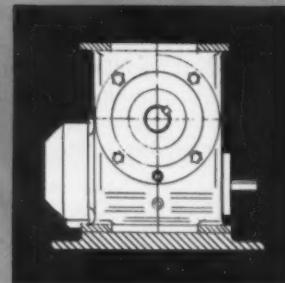
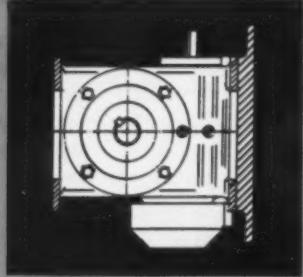
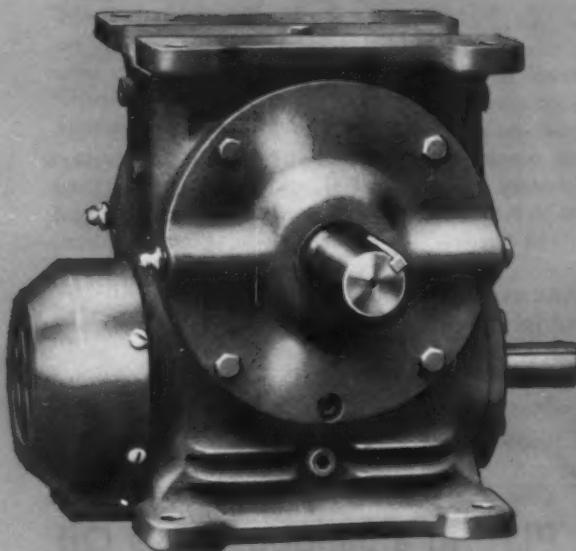


**TOP DOLLAR:** Oscar Dansler (l.), keeper at U. S. Steel's blast furnace, Gary, had an idea. He talked it over with co-worker, stove tender Salvatore Lumella (r.), and together they worked it out in a sandbox. They submitted a drawing of a unique gate arrangement in a trough to more easily separate slag from the iron coming from the furnace. The payoff: \$10,000 per man, one of the largest suggestion awards ever.

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899 Nottingham Way, Trenton 2, New Jersey

Harold Thomas Smith

# He Licked the Smoke Nuisance

**Smoke was a chronic problem with scrap processors before Mr. Smith tackled the job.**

**His device marks the start of a new era of peace between scrap men and their neighbors.**

■ Harold T. Smith, chief engineer at Summer & Co., Columbus, O., has the distinction of being the inventor of the first proven smokeless production auto and wire burners for the scrap industry.

This ingenious engineer began working on a smoke eliminating device in the spring of 1955. Summer & Co., along with other companies in the scrap industry, was faced with a growing smoke problem. Open burning of insulated wire and other materials was creating bad public relations. The industry knew it was only a matter of time before rigid enforcement of air pollution laws would prevent burning processes altogether.

**He Goes to Work**—Something had to be done and Mr. Smith did it. After two years of research and experimenting, he built an electronically-controlled pilot model smoke eliminator. When tests proved successful, he was given the green light to build a full scale production burner for Summer's Columbus yard. They dubbed it the Smokatron.

Before a group of city air pollution officials, the completed burner was filled with old tires, oil, wire, plastic, and other objectionable combustibles and ignited. Black smoke poured out of the inferno. Then, with the flick of a switch, the smoke vanished. The City of Columbus issued a permit to burn



**HAROLD T. SMITH:** A specific solution to the smoke problem.

and Summer & Co. was in the Smokatron business.

**Interest Grows**—Subsequently, Mr. Smith developed a continuous type burner for the production burning of old automobiles. The first such unit was installed at J. T. Knight & Sons yard in Atlanta.

Harold Smith's latest brainchild is a Smokatron variation which will enable scrap yards to burn out entire wooden railway cars without smoke or noxious odor. While he has been preoccupied with smoke, he has tackled other knotty problems that come up in the scrap industry from time to time. Not too long ago, for instance, he set up a

production line operation for dismantling a large number of obsolete steam locomotives.

**His Background**—Mr. Smith was born in Clarksville, Ark., on Oct. 22, 1919. He received his degree as a chemical engineer from the University of Arkansas in 1942. During World War II, he was a radar officer with the Army Air Corp. in the South Pacific. He joined Summer & Co. upon discharge in 1946.

In 1956 he was recognized by the Air Pollution Control Assn. and was asked to deliver a paper on his work in the field of electrostatic precipitation.

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**Stainless**

## **Jones & Laughlin**

STEEL CORPORATION

### **STAINLESS and STRIP DIVISION**

YOUNGSTOWN 1, OHIO



# Are Automakers Running Scared?

**Strikes and shutdowns cost the auto industry thousands of potential new car sales.**

**Now it's an old fashioned production race to get cars into dealer showrooms.**

■ Don't miss the significance of the all-out auto production that has been scheduled for most automakers.

It's a desperate race to make up for time lost in recent strikes and to prevent sales missed in October and November from being permanently lost. The automakers believe that the demand for their cars is solid, but there is some fear that the strikes that hit most of the industry were more damaging than appears on the surface.

**Overtime Ordered** — Most automakers have scheduled overtime, Saturday, and holiday work for an indefinite period. This is expensive production and not something that is entered into lightly. But, for a while at least, the auto industry is in an old time production race.

For the first time in several years, the automakers really mean it when they say their only problem is not enough cars. And it's a problem that should not be minimized. They are well aware that a potential customer has to be sold fast, and that a real danger lurks in the dearth of cars available to dealers.

**Four-Year Low** — Dealer inventories are at a four-year low. This means that even without a sensational demand, there is room for probably 300,000 cars in the normal pipeline between factory and buyer. They intend to fill that pipeline in a hurry.

There are about 110,000 new

models in dealer hands today. This is less than a week's supply and scarcely enough to give dealers something to put in their showrooms. Unsold units account for probably 160,000, a relatively low cleanup figure.

Sources that can be counted on to give an uncolored report of dealer sentiment state flatly that optimism is strong. But there is also a tremendous sense of urgency that the demand has to be met almost immediately.

## Caught With Material Down

**No Building** — Another factor that will become apparent in a hurry is that the automakers are going into this big production surge without any great inventory status.

Generally speaking, automakers have shied away from building up any inventory of parts and materials that wasn't absolutely necessary. And during the recent strikes they made every effort to avoid any excess buildup.

**Rush Orders** — Now, they are faced with the problem of meeting accelerated production schedules with a minimum supply. This is already being reflected in stepped up orders and demand for immediate delivery from suppliers.

People still tend to forget that if you boost your production schedule 50 pct, it immediately cuts a 15-day inventory to 10 days. That is the situation now faced by most automakers.

**Reason to Hope** — How long the new production race lasts will depend, obviously, on how well the new cars sell. Automakers are professional optimists and you can't really tell from official statements just how strong the demand is.

However, there does appear to be a firm base for optimism and it's not unusual for an automaker, after

making his usual statement of hope and cheer to add that "I really mean it this time."

## Credit Controls Revival Hinted

Do we need selective controls over consumer credit? That's a question that's bothering the Federal Reserve Board and others. The thinking is that too liberal credit terms can create a "boom" that can lead to some dangerous conclusions by management.

Vice Chairman Balderstone, of the Board of Governors of the Federal Reserve System, had some pertinent comments on this recently. He recalled how liberal credit terms jacked up sales of consumer durables.

"This consumer boom was no small factor in inducing subsequent management decisions that were not altogether prudent. . . .

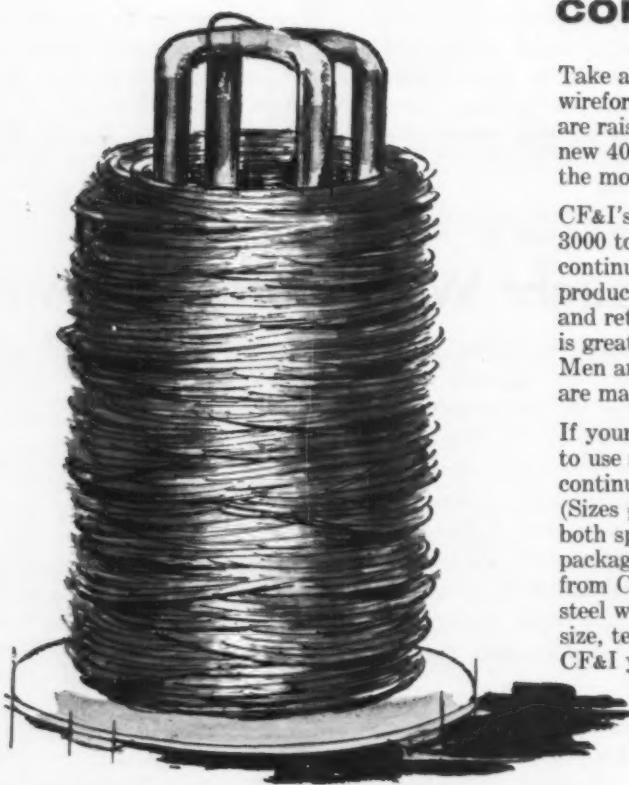
"And so, in 1957 and 1958, society paid in unemployment, lost salaries and lost profits the price of another bust that followed in the wake of a boom which we must, in all honesty, recognize was helped on its way by the excessively rapid growth of consumer credit."

Mr. Balderstone said that developments might call for a reconsideration of consumer credit controls.

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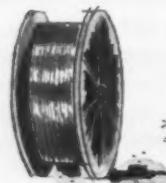
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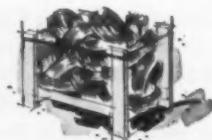
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First of a New Series On:

# METALWORKING Capital Appropriations

## A Quarterly Survey

conducted for The IRON AGE by the  
National Industrial Conference Board

## How Management Can Use This New Survey

- In this issue The Iron Age begins a unique series of quarterly reports to the metalworking industry.

### What Survey Covers

For the first time, funds **actually appropriated** by management for new plants and equipment are reported for 36 major segments of metalworking.

The Metalworking Capital Appropriations Survey is designed to forecast future demand for capital goods.

There are several ways manage-

ment can use this new planning tool effectively:

### Business Barometer

Since the capital goods industry usually leads the rest of the economy, this survey can be used to gauge the overall course of business in coming months.

### Spending Guide

With appropriations data broken down into major industry groups, management can compare its own capital spending program with all

manufacturing, and more important, with its own industry. A figure on capital appropriations per worker is particularly useful.

### Marketing Tool

For companies selling to metalworking, the capital appropriations survey provides a brand new marketing tool.

By reporting the spending plans of major industry groups, the survey can be used to locate the best prospects for future capital goods orders.

## Metalworking's Spending Plans, 1957-1958

Industry	SIC Code	Capital Appropriations Approved—\$ Millions						Percent Change	Appropriations per Worker, Dollars		
		1957			1958						
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	1st Half 1958 Over 1st Half 1957				
Metal Furniture.....	25	\$2.2	\$1.0	\$1.4	\$1.5	\$1.0	-20 Pct	\$234			
Primary Metals.....	33	297.7	316.6	205.1	102.2	82.6	-70	418			
Fabricated Metal Products.....	34	66.0	36.4	37.2	27.6	23.5	-50	232			
Machinery (except Electrical).....	35	237.7	161.2	87.3	87.6	68.3	-61	418			
Electrical Machinery and Equipment.....	36	88.4	32.3	37.9	38.3	31.6	-41	405			
Transportation Equipment.....	37	236.4	135.3	180.9	136.9	68.5	-45	220			
Instruments, etc.....	38	12.6	7.2	6.7	7.2	4.2	-42	194			
<b>Total Reported by Metalworking<sup>1</sup></b>		<b>\$939.0</b>	<b>\$690.0</b>	<b>\$556.5</b>	<b>\$401.3</b>	<b>\$297.7</b>	<b>-58</b>	<b>\$293</b>			
<b>Total Estimated for All Metalworking<sup>2</sup></b>		<b>\$1,658</b>	<b>\$1,142</b>	<b>\$917</b>	<b>\$672</b>	<b>\$516</b>	<b>-58 Pct</b>	<b>\$301</b>			

Figures are based upon returns from 386 companies reporting 582 individual industry codes.

<sup>1</sup> Excludes ordnance and accessories (SIC code 10) and miscellaneous metal manufacturing (SIC code 39). Figures as reported by cooperating companies.

<sup>2</sup> Estimated for metalworking universe described in the table on the opposite page. This universe includes metalworking companies with at least one plant of 800 production workers or more in 1957. Calculated by dividing reported appropriations in each quarter by the coverage ratios shown in the table opposite.

SOURCE: The National Industrial Conference Board.

# How Survey Details Metalworking's Spending Plans

**This new survey of metalworking capital appropriations covers thirty-six industries.**

**It reports capital outlays in finer detail than ever before. An appropriations per worker figure provides a new planning tool.**

Business trends in the metalworking industry have a significant impact on the rest of the economy. The industry accounts for 48 pct of the money spent by all manufacturers for new plant and equipment and 47 pct of total manufacturing employment.

What metalworking companies plan to spend for capital goods is

an important area for business research. In particular, changes in capital appropriations for individual industries within metalworking are of direct interest for marketing studies and management planning.

**Reflect Future Spending**—Capital appropriations represent a company's basic decision to spend. They are approved at the top-management level by the board of directors, the executive committee, or the chief executive officer. A capital appropriation is an objective fact and is recorded.

While capital appropriation reports are collected after each quarter, their importance lies in the information they shed on the future trend of capital spending.

**New Survey**—This new survey reports the quarterly trend of capital appropriations in thirty-six metalworking industries. These are included in the following major industrial classifications: Metal furniture; primary metals; fabricated metal products, non-electrical machinery; electrical machinery and equipment; transportation equipment; and instruments.

Ordnance is not reported for reasons of national security. Neither are the miscellaneous manufacturing industries since they represent a small fraction of the total. However, the study covers the major part of the durable manufacturing industries.

Capital appropriations are re-

ported by companies on a divisional or establishment basis. The survey has been initiated among 1027 metalworking companies which have at least one plant with 500 employees. These companies have plants in 1392 individual industry classifications.

Industry classification is based upon the 1957 Standard Industrial Classification (SIC) manual of the U. S. Government.

**Pioneer Effort**—Previously, business analysis has been confined mostly to broad industry classifications. This means that a large diversified company is classified in the industry which is represented by the most important product. Nonmanufacturing activities, if they are minor, are also included in the manufacturing sector and vice versa.

The present survey is a pioneering effort to study the important plant and equipment area in terms of specific industry detail.

**Cleaner Study**—The classification of appropriations by "cleaner" industrial groups is a major contribution of the metalworking study. Here is a further analysis of the problem and some of the tools required to solve it:

Manufacturing industries can be classified by the so-called two-digit industry codes of the Standard Industrial Classification (SIC). These are the familiar primary metals (SIC 33), electrical machinery (36), transportation equipment (37), etc.

A company can be classified in these two-digit groups even though an important but not major part of its activities are outside the scope of this industry. For example, an automobile company (37) can own a steel foundry (33).

In a two-digit classification the operations and activities (such as capital appropriations) relating to this steel foundry are attributed to the transportation equipment industry.

**Better To Separate**—It is preferable to separate and classify a company's activities into the so-called three-digit classifications of the

## How Survey Covers Plant Employment

All companies in the industries listed below, with plants of 500 or more plant workers, were queried. They account for more than two-thirds of the total employment and buying power in the metalworking industry. The last column shows the percentage of production workers employed by the companies cooperating in this survey.

Industry	SIC Code	Plant Workers	Plant Workers	Cooperating Companies
		Companies With Plants of 500 or more	Cooperating Companies	Pct of Total
Metal Furniture	251, 252, 253, 254, 259	34,164	10,701	31 Pct
Blast Furnaces, Steel Works, Rolling Mills	331	580,000	245,000	42
Iron and Steel Foundries	332	60,000	43,000	72
Primary Smelting Nonferrous	333, 334	72,000	50,000	69
Rolling, Drawing, Extruding, Nonferrous	335	114,000	77,000	68
Nonferrous Foundries	336	20,000	11,000	58
Misc. Primary Metal Industries	339	39,000	16,000	43
Metal Cans	341	47,000	45,000	94
Cutlery, Hand Tools, Hardware	342	53,000	34,000	64
Heating Equipment (except electrical) & Plumbing Fixtures	343	24,000	13,000	54
Fabricated Structural Products	344	58,000	23,000	40
Screw Products & Rivets	345	22,000	11,000	48
Stampings	346	70,000	51,000	73
Other Fabricated Metal Products	347, 348, 349	77,000	44,000	58
Engines and Turbines	351	75,000	57,000	75
Farm Machinery & Farm Tractors	352	83,000	32,000	51
Construction, Mining, Materials Handling Equipment	353	111,000	75,000	68
Metalworking Machinery and Equipment	354, 359	108,000	56,000	52
Special Industrial Machinery	355	45,000	25,000	56
General Industrial Machinery and Equipment	356	87,000	53,000	61
Office and Store Machines	357	77,000	51,000	67
Service Industry Machines	358	41,000	23,000	57
Electrical Transmission Equip.	361	98,000	46,000	52
Electrical & Industrial Apparatus	362	135,000	56,000	42
Household Appliances	363	98,000	42,000	43
Electric Lighting & Wiring Equipment	364	60,000	28,000	47
Radio & TV Receivers	365	66,000	29,000	45
Communication Equipment	366	107,000	36,000	34
Electronic Components	367	94,000	46,000	49
Misc. Electrical Equipment	369	31,000	7,000	21
Motor Vehicles & Equipment	371, 375, 379	582,000	479,000	82
Aircraft & Parts	372	530,000	418,000	79
Ship & Boat Building	373	75,000	14,000	18
Railroad Equipment	374	42,000	22,000	52
Mechanical & Control Instruments	382	41,000	25,000	60
Other instruments, photo. equipment, etc.	381, 383, 384, 385, 386, 387	119,000	34,000	29
Total		3,943,000	2,328,000	60 Pct

Based upon returns from 366 companies reporting 582 individual industry codes. Employment figures based on Iron Age Census data, 1957. Figures in columns three and four were rounded to the nearest thousand after percentage figures in column five were calculated.

SOURCE: The Iron Age; The National Industrial Conference Board.

## Capital Appropriations | Primary Metal Industries

Industry	SIC Code	Capital Appropriations Approved—\$ Millions						Percent Change 1st Half 1958 Over 1st Half 1957	Appropriations per Worker, Dollars 1st Half 1958		
		1957		1958		1st Half 1958					
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.					
<b>Blast Furnaces, Steel Works, &amp;</b>											
Rolling Mills	331	\$216.7	\$109.1	\$82.6	\$48.8	\$85.0	-65 Pct	\$465			
Iron & Steel Foundries	332	6.3	7.6	8.1	4.6	3.2	-44	182			
Primary Smelting, Nonferrous <sup>1</sup>	333, 334	34.4	116.3	65.4	31.6	2.9	-75	692			
<b>Rolling, Drawing, Extruding,</b>											
Nonferrous	335	18.9	81.7	45.3	13.1	8.9	-77	297			
Nonferrous Foundries	336	18.5	0.4	3.0	2.5	0.2	-86	236			
Misc. Primary Metals	339	2.9	1.4	0.7	1.6	1.4	-30	182			
<b>Total</b>	<b>33</b>	<b>\$297.7</b>	<b>\$316.6</b>	<b>\$205.1</b>	<b>\$102.2</b>	<b>\$82.6</b>	<b>-70 Pct</b>	<b>\$418</b>			

<sup>1</sup> Includes secondary nonferrous smelters (SIC code 334).

SOURCE: The National Industrial Conference Board.

Standard Industrial Classification Manual. For example, the non-electrical machinery industry (35) consists of engines and turbines (351), farm machinery (352), construction and mining machinery (357) and other industries.

In a three-digit classification, the activities of each of these individual industries are classified more precisely. The steel foundry of the automobile company is grouped with other steel foundries. The resulting automobile industry figures then more accurately describe that industry alone.

**Reason For Study**—Because of this The National Industrial Conference Board was eager to undertake a basic study of capital appropriations classified by three-digit industry groups. Such information would be of great value in locating future markets and in determining specific industry trends.

The capital appropriations in this report, the first of a continuing series, are classified according to three-digit industrial groupings. This is the first attempt by any organization to provide current information in the capital goods area with such a fine industry classification.

**Reporting Companies**—Reports were submitted by 386 companies, with a total of 586 separate three-digit industry groups. Some of these returns were taken over from an existing capital appropriations survey conducted by the Conference Board with the financial sponsorship of Newsweek magazine.

About 30 pct of the 586 industry reports came from this broader appropriations study. These were the companies with only a single three-digit classification, for which there was obviously no need to report the same figures twice.

**Industry Coverage**—The metalworking survey coverage is shown on p. 35. The total of 3,943,000 production workers in 1957 were employed by metalworking companies with at least one plant of 500 production workers or more.

This represents 61 pct of all production workers in metalworking plants employing twenty workers or more, including the ordnance and miscellaneous metal manufacturing groups.

The establishments reporting in the survey represent almost 60 pct of these production workers in the

larger metalworking companies and divisions.

**High-Coverage Areas**—Of the thirty-six separate metalworking industries analyzed in the survey, thirteen have coverage ratio of 60 pct or more. Among the industries having the highest coverage ratios are: Iron and steel foundries, 72 pct; primary smelting nonferrous metals, 69 pct; metal cans, 94 pct; stampings, 73 pct; engines and turbines, 75 pct; motor vehicles and equipment, 82 pct; and aircraft and parts, 79 pct.

The total appropriation figures for all large metalworking establishments, shown in the table on p. 34 were obtained by dividing the reported appropriation figures for each of these thirty-six industries by the coverage ratios indicated in the coverage ratio table, p. 35.

**Success Formula**—There's no question of metalworking's importance to the overall economy.

The success of this new metalworking capital appropriations survey can be attributed to the willingness, particularly of larger diversified companies, to report capital appropriations according to separate industry classifications.

## Capital Appropriations | Fabricated Metal Products

Industry	SIC Code	Capital Appropriations Approved—\$ Millions				Percent Change		Appropriations per Worker, Dollars	
		1957			1958		1st Half 1958 Over 1st Half 1957		
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.			
Metal Cans.....	341	\$14.9	\$12.6	\$14.1	\$7.1	\$8.0	-45 Pct	\$341	
Cutlery, Hand Tools, Hardware.....	342	17.6	-6.5 <sup>a</sup>	5.7	0.1	-0.6 <sup>a</sup>	<sup>b</sup>	<sup>b</sup>	
Heating Equipment (except Electrical) & Plumbing Fix.....	343	6.3	7.0	2.4	3.9	2.0	-56	568	
Fabricated Structural Products.....	344	4.1	10.9	6.8	6.1	7.5	-10	575	
Screw Products & Rivets.....	345	9.3	2.0	3.2	1.6	0.7	-80	217	
Stampings.....	346	5.6	4.3	2.1	3.7	2.3	-40	117	
Other <sup>1</sup> .....	347-349	8.2	6.2	2.9	5.1	3.6	-40	197	
<b>Total.....</b>	<b>34</b>	<b>\$66.0</b>	<b>\$36.4</b>	<b>\$37.2</b>	<b>\$27.6</b>	<b>\$23.5</b>	<b>-50 Pct</b>	<b>\$232</b>	

<sup>a</sup> Includes coating and engraving on metal, wirework and wire springs, and miscellaneous fabricated metal products, SIC codes 347, 348, and 349, respectively.

<sup>b</sup> Cancellations greater than appropriation approvals.

<sup>b</sup> Net calculated, swing to net cancellations.

SOURCE: The National Industrial Conference Board.

# Spending Reports by Industry

## Farm Machinery, Electronic Components Show Gains

Here are the details on capital outlays by 36 different metalworking groups in first-half 1958.

While lower overall than the same period last year, farm machinery and electronics are some bright spots.

Almost \$1.2 billion estimated capital appropriations were approved by the larger metalworking companies in the first six months of this year (see table, p. 34). This represents a decline of 58 pct from the first half of 1957.

But the year-to-year decline for the second quarter of 1958 was somewhat less than for the first quarter. Similarly, the decline from the first to the second quarter of 1958 was also less than the comparable decline from the first to the second quarters a year ago.

**Report Major Groups**—Capital appropriations in each of the broad (2-digit) industry groups, but actually based upon finer industrial classification, are also shown in the first table. In each of the seven major metalworking groups, appropriation approvals in the first half of 1958 were lower than in the same period a year earlier.

The first half of 1958 represented the two worst quarters of the 1957-58 business recession. Corporate profits were particularly affected in the metalworking industries and such profits are directly related to the trend of capital appropriations.

**New Analysis Tool**—The figures reported on capital appropriations per production worker enable a company and its divisions to compare their appropriations with com-

panies or divisions engaged in similar activities. The table on p. 34 shows the average capital appropriations approved in the first half of 1958 in terms of the number of production workers employed in 1957.

For all reporting companies, \$293 in capital appropriations were reported per production worker. These averages ranged from a low of \$194 per worker in the instruments industry to \$418 in the primary metals group.

For the entire metalworking industry, including estimates for the part of the industry not cooperating in the initial surveys, there was \$301 approved per production worker, or just a difference of \$8 from the reported average.

In round numbers, then, metalworking companies approved \$300

## Capital Appropriations | Machinery & Equipment

Industry	SIC Code	Capital Appropriations Approved—\$ Millions				Percent Change		Appropriations Per Worker, Dollars	
		1957		1958		1st Half 1958 Over 1st Half 1957		1st Half 1958	
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	1st Half 1958	1st Half 1958	1st Half 1958
Engines & Turbines	351	\$14.8	\$32.2	\$ 7.1	\$ 6.7	\$ 3.4	-79 Pct	\$ 178	
Farm Machinery & Farm Tractors	352	5.8	6.3	6.6	5.9	8.1	18	433	
Construction, Mining, Handling Equipment	353	91.8	15.2	5.0	25.7	8.3	-68	452	
Metalworking Machinery & Equip. <sup>1</sup>	354, 359	13.9	6.3	5.7	6.1	3.2	-54	165	
Special—Industry Machinery	355	23.6	14.7	7.8	12.3	16.1	-26	1,131	
General Industrial Machinery & Equip.	356	12.6	8.3	5.3	10.3	4.8	-28	285	
Office & Store Machines	357	70.6	72.5	47.0	19.5	19.3	-73	758	
Service Industry Machines	358	4.5	5.6	2.8	1.2	5.0	-39	268	
Total	35	\$237.7	\$161.2	\$87.3	\$87.6	\$68.3	-61 Pct	\$418	

<sup>1</sup> Includes miscellaneous machinery, SIC code 388.

SOURCE: The National Industrial Conference Board.

in appropriations per worker in the first half of 1958.

### Primary Metals

In the primary metals group, cooperating companies reported their first half approvals this year down from a year earlier (see table p. 36).

The nonferrous area was particularly affected adversely. But the rise in appropriations approved for blast furnaces, steel works and rolling mills from the first to the second quarters of 1958 was encouraging.

Capital appropriations approved per worker ranged from \$182 in iron and steel foundries and miscellaneous primary metals to \$692 for primary smelting of nonferrous metals.

Since the blast furnace, steel works, and rolling mills group appropriated a substantial part of the industry's totals, it is not surprising that their appropriations per worker of \$465 was not too different from the primary metals industry average.

### Fabricated Metal Products

Capital appropriations approved

in the fabricated metals industries were also lower in the first half of 1958 than a year earlier (see table p. 37). However, in this group there was a considerable spread in the rate of approvals.

In fabricated structural products appropriations were only 10 pct lower in the first six months of this year compared to first-half 1957. On the other hand, approvals for establishments making screw products and rivets were down 80 pct compared with the year-ago rate.

**Show Upturn** — Two industries in this group reported higher appropriations in the second quarter of 1958 than in the first—metal cans and fabricated structural products. And the fabricated metals group as a whole suffered only a relatively small appropriations decline from the first to the second quarters of this year.

Appropriations per worker in this industry were at the lower end of the scale. Yet even here, there was a considerable range. Only \$117 in appropriations per worker was approved for stampings, contrasted to \$568 for heating equipment (except electrical).

### Nonelectrical Machinery

The farm machinery industry was a bright spot in the nonelectrical machinery group. But the major group as a whole reported lower capital appropriations in the first half of 1958 (see above).

The farm machinery classification was one of the few reporting higher appropriations this year than last, and for each of the quarters separately. In view of the improved farm income picture this year, such a development is not surprising.

Also, in the special-industry machinery group, which includes food-products machinery, approvals were higher in the second quarter than in the first quarter of this year or the second quarter a year ago.

**Reflect Growing Demand** — Developments in the food industry, with appropriations being approved at a steady or increasing rate in relation with the demand for food, are an important factor in this relatively good showing.

Capital appropriations per worker in the nonelectrical machinery industry ranged from a high of \$1,131 in the special-industry ma-

chinery group to a low of \$165 in the metalworking machinery and equipment industry.

### Electrical Machinery

Another of the industries reporting a gain in capital appropriations approvals was the electronic components industry. In the electrical transmission equipment industry, second-quarter 1958 appropriation approvals were also higher than a year ago.

Aside from the electronic components group, however, all the other industries in the electrical machinery and equipment industry reported approvals significantly below last year (see below).

Capital appropriations per worker ranged from a low of \$124 in the electrical lighting and wiring equipment industry to a high of \$713 in radio and TV receivers. Generally speaking capital appropriations per worker in these industries were gen-

erally lower than the average of all metalworking.

### Transportation Equipment

Capital appropriations in the transportation equipment industry, as in most metalworking industries, were substantially lower in the first half of 1958 compared to year-ago level (see table below). Here, too, was an industry, railroad equipment, which had approvals higher

## Capital Appropriations | Electrical Machinery & Equipment

Industry	SIC Code	Capital Appropriations Approved—\$ Millions				Percent Change	Appropriations Per Worker, Dollars		
		1957		1958					
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.				
Electrical Transmission Equip...	361	\$29.1	\$ 4.5	\$ 9.4	\$ 8.7	\$ 5.8	-57 Pct		
Electrical & Industrial Appliances	362	12.9	7.4	8.4	7.8	4.5	-40		
Household Appliances.....	363	14.5	5.0	2.8	7.6	2.8	-47		
Electrical Lighting & Wiring Equipment.....	364	2.9	2.3	2.9	2.2	1.3	-33		
Radio & TV Receivers.....	365	1.6	2.6	3.2	0.9	1.2	-52		
Communication Equipment.....	366	19.0	3.6	7.0	4.8	7.6	-45		
Electronic Components.....	367	5.3	5.6	3.8	5.3	7.9	21		
Misc. Electrical Equipment.....	369	1.0	1.0	2.4	0.9	0.6	-33		
<b>Total</b> .....	<b>36</b>	<b>\$86.4</b>	<b>\$32.3</b>	<b>\$37.9</b>	<b>\$38.3</b>	<b>\$31.6</b>	<b>-41 Pct</b>		

SOURCE: The National Industrial Conference Board.

## Capital Appropriations | Transportation Equipment

Industry	SIC Code	Capital Appropriations Approved—\$ Millions				Percent Change	Appropriations Per Worker, Dollars		
		1957		1958					
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.				
Motor Vehicles & Equipment <sup>1</sup> ... 371, 375, 379	\$147.7	\$ 62.8	\$142.0	\$100.0	\$ 41.0	-33 Pct	\$294		
Aircraft and Parts.....	372	85.2	70.4	34.9	33.1	26.1	-62		
Ship & Boat Building.....	373	2.5	1.1	1.0	1.7	0.6	-33		
Railroad Equipment.....	374	1.0	1.0	3.0	2.1	0.8	45		
<b>Total</b> .....	<b>37</b>	<b>\$236.4</b>	<b>\$135.3</b>	<b>\$180.9</b>	<b>\$136.9</b>	<b>\$ 68.5</b>	<b>-45 Pct</b>		

<sup>1</sup> Includes motorcycles, bicycles and parts, and transportation equipment, not elsewhere classified, SIC codes 375, and 379, respectively.

SOURCE: The National Industrial Conference Board.

## Capital Appropriations | Instruments | Photographic Equipment

Industry	SIC Code	Capital Appropriations Approved—\$ Millions						Percent Change 1st Half 1958 Over 1st Half 1957	Appropriations Per Worker, Dollars 1st Half 1958		
		1957			1958						
		1st Qtr.	2nd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.					
<b>Mechanical Instruments &amp; Control Instruments</b>											
Control Instruments	382	\$ 8.1	\$ 4.0	\$ 2.6	\$ 3.5	\$ 2.2	-53 Pct	\$232			
Other <sup>1</sup>	381, 383, 384, 385, 386, 387	4.6	3.2	4.1	3.7	2.1	-25	170			
Total	38	\$12.6	\$ 7.2	\$ 6.7	\$ 7.2	\$ 4.2	-42 Pct	\$194			

<sup>1</sup> Includes laboratory, scientific and engineering instruments, optical instruments, surgical instruments, ophthalmic goods, photographic equipment, and watches, clocks, clock-operated devices, SIC codes, respectively, 381, 383, 384, 386, and 387.

SOURCE: The National Industrial Conference Board.

this year than last.

**High Coverage**—Of particular interest is the motor vehicles and equipment industry, where the survey coverage is one of the highest of all the individual thirty-six industry groupings.

This important capital-goods spending group also had lower approvals this year than last, but the decline was less than the average of all metalworking establishments.

In aircraft and parts, also characterized by high survey coverage, appropriation approvals were down twice as much as the decline for the motor vehicle industry.

Capital appropriations per worker for the transportation equipment industry were lower than the average for all metalworking, in each of the four separate groups, as well as for the total industry.

### Instruments

Appropriations in the mechanical instruments and control instruments industry were also lower in the first half of 1958 compared with the previous year (see above).

In this industry, however, the coverage for the other components which represent a wide variety of instruments, photographic goods, and watches and clocks was not

sufficiently high to warrant separate analysis in this initial report.

Capital appropriations per worker in this industry were significantly lower than the average for all metalworking companies.

### Future Plans

This extension of the capital appropriations approach to the metalworking industries offers a finer tool of analysis in the capital spending field.

Management planning can be based on information more clearly delineated for specific manufacturing activities.

The collection of capital appropriations data by three-digit industrial classifications, with 36 separate industries presented, should make the appropriation even more useful to marketing and financial analysis.

**Clear Picture**—Only with the collection of more quarters of information in this new and continuing survey will the outline of the appropriation trends in each of the 36 industries become clearer.

With the gathering of more quarters of data will come a better appreciation of the future course of capital spending by finer industrial

detail, available from no other source.

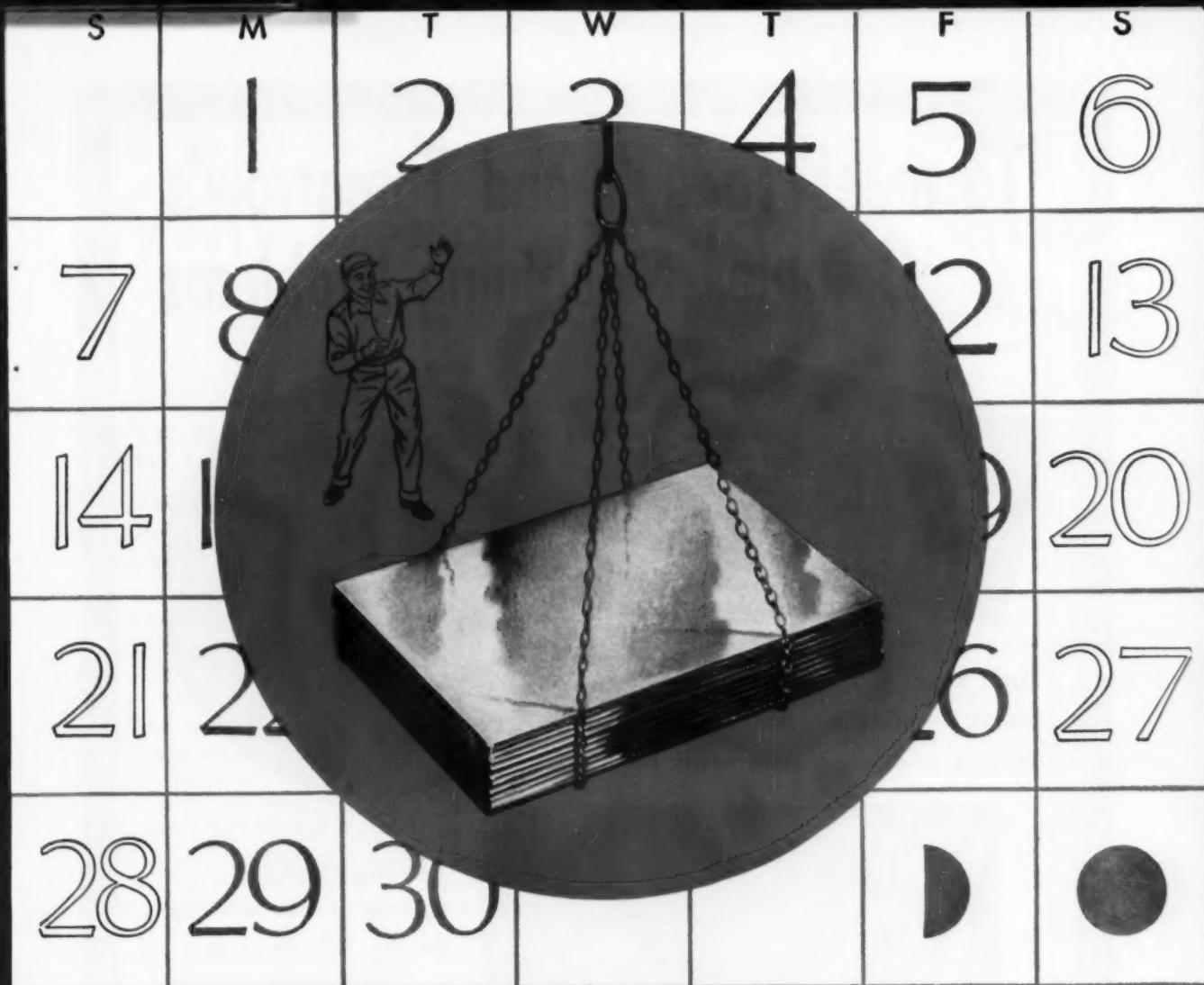
**Extend Survey**—In addition, present experience with this new survey is sufficiently promising to suggest a still further extension to include all metalworking activity.

With each passing month, The Conference Board learns of new companies, particularly the smaller ones, that are adopting the capital appropriations approach to plant and equipment spending.

**Seasonal Trends**—Experience with the broader appropriations survey indicates there are seasonal variations in appropriation approvals in some industries. Some appropriate more in the first quarter while others favor the fourth quarter of the year.

More information with the present metalworking appropriations survey will be required before seasonal patterns can be clearly distinguished. This may develop in succeeding surveys.

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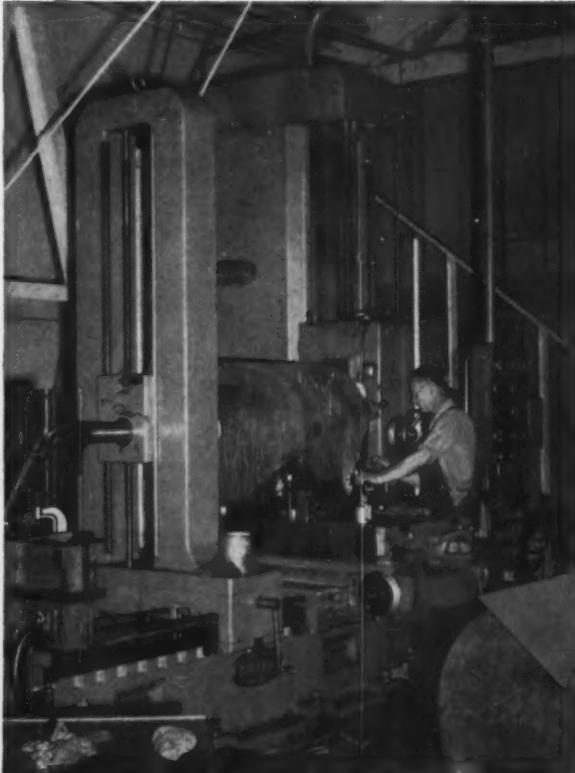


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# Why Detroit Has to 'Go Small'

## Economy Cars Are the One Remaining Growth Market

**Inevitably, the Big Three automakers are being drawn toward small car production.**

**It paints a disturbing picture for Rambler and the newborn Lark.—By R. D. Raddant.**

■ You can still get even money in Detroit that the Big Three will not push ahead with small car plans.

But, more and more, those closest to the source indicate that the move is definitely on. Whether it has passed the so-called point of no return is still debatable, but the feeling is growing that it has.

This is in spite of glowing reports of better than expected demand for the new 1959's. And die-hards still cling to the hopes that a really strong sales year will make it unnecessary to take the big step.

**One Road Open** — However, many believe it's inevitable, good sales or not. With the medium priced field possibly in a permanent decline, there may be a need for the auto industry to widen its base. And with the top side apparently closed off, there is only one other direction to go — into the lower priced range.

Furthermore, automakers can no longer ignore the import threat, even though their own foreign-made cars are getting into the act with greater force.

**Need for Secrecy** — Regardless of the final decision, automakers are doing a good job of guarding their small car plans. With good reason. If it was definitely known that the small car was in the works for 1960, it could have a negative effect on sales of 1959's.

One thing that no one likes to think about is the effect of a Big Three entry into the field on American Motors, which has dominated it and capitalized on it.

**In the Running** — Then there's the Studebaker Lark, apparently off to a good start and giving at least a momentary lift to the sagging morale at South Bend, where Studebaker's decline has left a big gap in the area's economy.

AMC's George Romney, who called the small car turn, puts up a good front, but there's no denying that the Rambler will be in a fight for its life if any of the Big Three invades its territory.

**Romney's Strategy** — Some of Mr. Romney's strategy can be guessed at, by sifting some obvious and not-so-obvious factors.

Most important is that AMC has

## Ford Introduces Its New Luxury Series



**THE GALAXIE:** Top model in the 1959 Ford line is the Galaxie, which will go on sale early in December.

Town Victoria model, foreground, gets its styling inspiration from the Thunderbird, top rear.



*Another Tinnerman Original...*

## Self-retaining "U" and "J" **SPEED NUTS®** cut assembly costs up to 50% or more!

If you are worried about rising assembly costs, let one-piece "U" and "J" SPEED NUTS keep costs down... and improve your product.

They can't fall off, once they've been pressed into screw-receiving position. No welding, staking or other secondary fastening devices needed. You eliminate lock washers—spring steel SPEED NUTS are self-locking, make vibration-proof attachments.

SPEED NUTS are ideal for blind assembly or hard-to-reach locations. Apply them *before* you paint panels without danger of paint-clogging. Or *after* porcelainizing, without damage to finishes. The "U" type is similar to the "J" type, shown above, but is used where full bearing surface on the lower leg is required.

A free Fastening Analysis can tell where SPEED NUT brand fasteners belong on your

products. Call your Tinnerman representative—he's listed in most major telephone directories. Or write to:

**TINNERMAN PRODUCTS, INC.**  
Dept. 12 • P. O. Box 6688 • Cleveland 1, Ohio

**TINNERMAN**

*Speed Nuts®*



FASTEST THING IN FASTENINGS®

CANADA: Dominion Fasteners Ltd., Hamilton, Ontario. GREAT BRITAIN: Simmonds Accessories Ltd., Treforst, Wales. FRANCE: Simmonds S.A., 3 rue Salomon de Rothschild, Suresnes (Seine). GERMANY: Meccano-Dandy GmbH, Heidelberg.

## Automotive Production

WEEK ENDING	CARS	TRUCKS
Nov. 22, 1958	141,072	24,474
Nov. 15, 1958	117,688	23,697
Nov. 23, 1957	151,846	23,605
Nov. 16, 1957	141,904	22,666
TO DATE 1958	3,525,276	751,517
TO DATE 1957	5,464,770	977,711

\*Preliminary

Source: Ward's Reports

been getting a lot of mileage out of old tooling. This makes the Rambler a pretty profitable product and there's every indication that it will be stretched to its utmost.

But that doesn't mean that Mr. Romney is sitting on his hands. Although comparatively young in years, he's an old hand in the auto industry and knows that the Rambler's future depends on keeping ahead of the trend.

**So Far, So Good** — For the moment, American Motors apparently is biding its time, and probably will wait for any of the Big Three to commit itself in the field, then make its own move.

Meanwhile, the Rambler is more than holding its own. Its more than 170,000 cars produced this year is ahead of all but five makes. These are Chevrolet, 994,607; Ford, 835,842; Plymouth, 320,530; Oldsmobile, 246,146; and Buick, 194,224.

Studebaker is getting its Lark off to a fast start, turning out nearly 3000 a week in getting its cars onto the road.

## Costs Influence 1959 Styling

Looking across the broad range of 1959 models, you can spot some developments that reflect directly on the steel demands of the auto industry.

It's more apparent in some models than in others, but the always-present struggle between styling and manufacturing shows up more this year than in any recent styling overhaul.

## Stamping Economy Stressed

The flat planes of the new models show that the drive for manufacturing cost-cutting has made a big inroad. It's a direct reflection of the times, with manufacturers faced with the problem of trimming costs of production in order to meet rising costs of labor and materials.

Without pointing the finger at specific models, auto companies this year are going to extremes to avoid deep draws in their stamping plants. Probably the die work is less costly, but the principal aim is to avoid the expense of extras involved such as in aluminum-killed sheets, for example.

**Wide Sheets Needed** — Another trend is the greater utilization of the wide sheet. Rear decks and tops in recent years have required wide sheets. But this year many of the hoods are extended, both in width and length, requiring a very wide sheet for the stamping.

In recent years the exhaust system has been getting real attention from auto engineers. Because of the increased use of twin ex-

hausts, and use of additives in new fuels, the problem of exhaust corrosion has multiplied. And so has owner irritation at the frequency of blown mufflers.

One result of the work improving mufflers and exhaust systems has been a significant jump in the auto industry's demand for aluminized steel and for galvanized.

**SAE Reports** — Here are some examples, as reported in the SAE Journal:

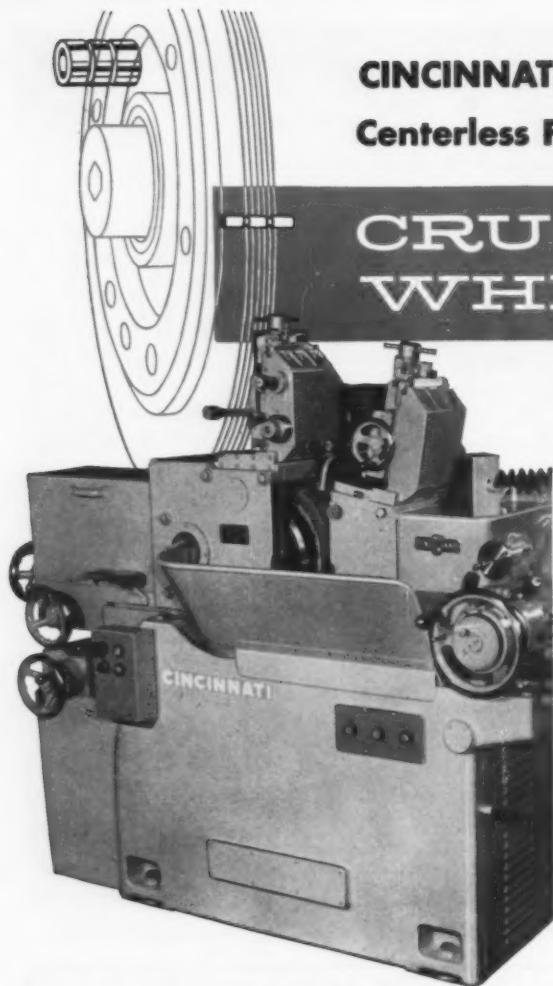
One approach is Chrysler's heavy gage muffler construction. Sheets are 0.036 in. thick. Chrysler engineers take the position that single sheet construction is more rigid than double construction, and gives greater freedom from blowouts.

Chrysler is using aluminized and zinc-coated steel. Buick's mufflers and tailpipes are constructed of aluminum or zinc-plated parts. Mufflers are double-wrap construction.

**Standard in Ford** — An aluminized muffler is standard on all 1959 Fords. Aluminum-coated walls and heads are specified.

## The Bull of the Woods





**CINCINNATI FILMATIC No. 1 Centerless Grinding Machine**, with Crush Truing Attachment (left) and Electro-Hydraulic Automatic Infeed Attachment. Catalog No. G-703-1.

**CINCINNATI gives you a New Concept in Centerless Form Grinding with**

**CRUSH TRUED WHEELS**

New methods are always enhanced by the latest design equipment. Take centerless form grinding with crush trued wheels, for example. Cincinnati has developed a new, highly proficient Crush Truing unit for CINCINNATI FILMATIC Nos. 1 and 2 Centerless Grinding Machines. It incorporates several new ideas in wheel crushing which contribute to the end result of precision form grinding at the lowest possible cost.

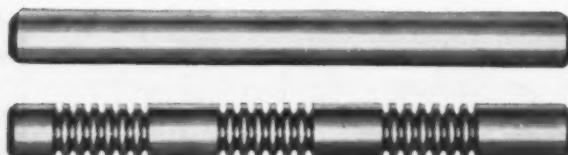
**Minimum setup time.** Crushing rolls are cartridge mounted and easily interchanged. Lateral adjustment provided for positioning.

**Dial indicator** provides visible check on crushing feed rate. Handwheel for rapid positioning.

**Long crushing roll life.** Rolls are  $5\frac{1}{2}$ " diameter for No. 1 Centerless and 6" diameter for No. 2 Centerless. Separate motor drive to re-grind worn rolls in position.

**Correct grinding wheel speed** for crushing, through an auxiliary motor drive and overriding clutch. Low-cost crush form grinding on a CINCINNATI Centerless is augmented by many Cincinnati exclusives such as FILMATIC grinding wheel spindle bearings and the world's most experienced Centerless Grinding Engineering service. Look into this method of precision grinding as a new production idea. You can start by writing for Cincinnati Crush Truing brochure No. G-706.

**GRINDING MACHINE DIVISION**  
The Cincinnati Milling Machine Co.  
Cincinnati 9, Ohio



**Rack teeth crush form ground** from the solid in one operation on a CINCINNATI FILMATIC No. 2 Centerless. Major diameter .500", minor diameter .320" (.090" depth of cut). Before and after grinding illustrated.



**CINCINNATI®**

CENTERTYPE GRINDING MACHINES • CENTERLESS GRINDING MACHINES  
MICRO-CENTRIC GRINDING MACHINES • CHUCKING GRINDERS  
ROLL GRINDING MACHINES • CENTERLESS LAPING MACHINES

# Political Left Is on Offensive

## Analyst Says Business Will Be Under Attack

**Veteran political expert warns that business can expect rough handling by new Congress.**

**One of the reasons is failure of public relations to do its job.**

—By G. H. Baker.

■ Management should prepare now for some new attacks from the political left, says a veteran political analyst.

"The left wing of American politics is going to move in on you," the nation's oil executives were told in Chicago recently by Lyle C. Wilson, vice president, United Press International and UPI Washington manager. His remarks were presented at the annual meeting of the American Petroleum Institute.

**Too Little, Too Late**—Mr. Wilson warned bluntly that "all industry" can expect to take a beating at the hands of the new Congress. Oil can expect to come under heavy attack because of what he called its failure to do "an effective public relations job."

"If any of you have public relations departments that aren't answering to the top man in your company, you've got the wrong set-up," he warned. Many public relations departments look good on paper, but fall down in performing the basic job—winning friends for the company.

**It Takes Guts**—This is easier said than done. Guts as well as dollars are required to build good relations with the public and to defeat those who would destroy the free enterprise system.

Many firms are willing to spend dollars on public relations pro-

grams, but wince at the prospect of hard slugging.

"The left wing of American politics plays harder than you are likely to fight them," Mr. Wilson declared.

**Quit Kidding Yourself**—There is no longer anything to be gained in pretending that the political left doesn't really mean what it says. It does. An inspection of the new line-up in the Senate and the House shows clearly that industry will have to scrap hard in 1959 and 1960 to ward off new attacks from those politicians who believe that government boards, not industrial management, should be running U. S. industry.

### Ike Considers Higher Taxes

A new round of higher taxes on mail and gasoline, and possibly other government services, is a

mounting possibility for 1959.

President Eisenhower, Treasury Secretary Robert Anderson, and other top Administration officials are now considering what—if any—tax hikes to request from Congress next year.

A boost of one or two cents in the federal gasoline tax is a strong possibility. This tax is earmarked to help pay for the nation's huge roadbuilding program. Managers of the highway trust fund say rapidly-rising costs of construction and land will push the fund into the red by some \$900,000 by 1960, and add another \$1 billion deficit in 1961 unless some new revenues are raised.

Higher postal rates, too, may be requested by the President. Despite mail rate boosts averaging one-third voted this year, the Post Office Department is running some \$400 million in the red. Another one-cent hike in first-class rates would help reduce this deficit.

## Labor Politicos Woo Votes

AFL-CIO leaders are losing no time in the scramble for votes. They have already opened their campaign to alert still more of "labor's friends" in both 1959 and 1960.

Labor was highly successful in electing friendly politicians this year. But success isn't going to the leaders' heads. Shrewdly, they are avoiding all temptation to rest on their political oars. By a skillful blend of persuasion, goading, and needling, they are keeping the rank-and-file alert and interested in politics.

**Pressure Still On**—"The pace, drive, and energy which resulted in victory this year must not only be maintained, but increased," a recent political memo from the AFL-CIO Committee on Political Education says. The memo observes pointedly, "the battle for both the 1959 and 1960 elections began on November 5" (the day after the 1958 Election Day).

The AFL-CIO calculates that more than 700 city elections will be held in 1959.

# 650,000 Miles of Driving Per Minute



"A" & "B" Pickling Lines—Jones & Laughlin, Cleveland

Each minute of operation these pickling lines process enough quality steel to produce automobiles that will give the American public 650,000 miles of carefree driving. High quality steel, mass produced by America's modern steel industry, has helped make low priced automobiles available to every family in the United States. These continuous strip pickling lines are typical of the modern production methods used in our steel mills today.

The Wean Engineering Company, Inc. has engineered and constructed seventy-one continuous pickling lines

THE WEAN ENGINEERING COMPANY INC. • WARREN • OHIO



# Farwest Set for Sales Upsurge

## Plant Expansions Show Area's Confidence

**Optimism about the business outlook is increasing along the West Coast.**

**Many firms, expecting rise in activity, put more money into new plants and expand present ones.**—By R. R. Kay.

■ Good news continues on the Coast's economic front.

The metalworking industry keeps pouring money into new plants and expansions, getting ready for the coming business upsurge.

**Attention, Sellers**—Here's an up-to-date rundown of the newcomers to the region and the firms expanding. They're in the market for metalworking products, equipment, and services. The southern California group includes:

Standard Steel Corp., Vernon—fuel tanks for missiles. Metalum Manufacturing Co., Los Angeles—aluminum awnings and coverings. BMW Manufacturing Co., Torrance—tools and dies.

Utility Trailer Manufacturing Co., City of Industry—truck-trailers. Chemical Contour Corp., Gardena—chemical milling. Los Angeles Die Mold, El Monte—diecast dies.

**Fabricators Active**—Sierra Steel & Fabricating Co., Gardena—steel fabrication. Air Control Products, Inc., Pico-Rivera—aluminum windows. Sheridan Gray, Inc., Torrance—stretch forming and hot sizing. Fonken Manufacturing Co., Glendale—golf ball retrievers.

H. D. Hunter & Co., Santa Fe Springs—hand tools. Mithra Engineering Co., Beverly Hills—strain gage adhesives. Metro Engineer-

ing, Canoga Park—tool and die making. Cor-Lar Manufacturing Co., Van Nuys—machine shop.

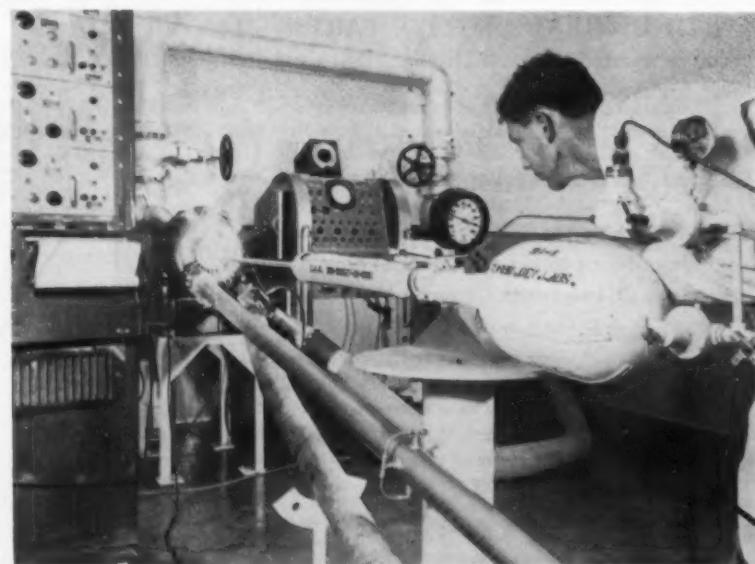
**Missles and Aircraft**—General Logistics Div. of Aeroquip Corp., Burbank—cargo tiedown buckles. Lacy Manufacturing Co., Dominguez—steel fabrication. Hoefner Corp., El Monte—missile valves. Mechtronics Corp., Culver City—metallurgical processing equipment.

Michael Flynn Manufacturing Co., City of Industry—aluminum extrusions. Airetek Dynamics, Inc., Los Angeles—engine mounts and aircraft parts. Chem-Therm Manufacturing Co., Inc., Monrovia—industrial steam cleaning equipment.

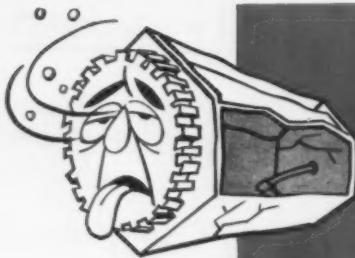
**Electrical Products**—A. E. Peterson Manufacturing Co., Glendale—baby strollers and high chairs. V & M Precision Grinding, Compton—chrome plating and grinding aircraft parts. Zinsco Electrical Products, Los Angeles—electrical switchboards, switch gears.

Sunstrand Turbo Div. of Sunstrand Machine Tool Co., Pacoima—accessory power supplies for guided missiles. Oscar-Paul Corp., Los Angeles—prototype tool shop. Fowler Manufacturing, Inc., North Hollywood—aircraft studs, bolts. Metrolog Corp., Pasadena—electronic equipment. Chemical Engineering Co., Van Nuys—electroless chemical plating.

## Man-Made Ice "Bullets" Used in Test



**FRIGID BATTERING:** Compressed air shoots bullets of ice at jet turbo-compressor in laboratory at AiResearch Mfg. Div. of Garrett Corp. Test, similar to aerial icing, shows if unit can withstand frigid weather.



**"DON'T GET CAUGHT  
WITH YOUR PLANTS DOWN!"**

## **Have UDYLITE repair, replace plating barrels NOW...at low cost!**

Get ready today for tomorrow's upswing in business! Have your plating facilities geared to peak performance . . . avoid the risk of costly down time during peak periods of production. Take inventory of your equipment needs . . . and the condition of your plating barrel equipment. Then let your

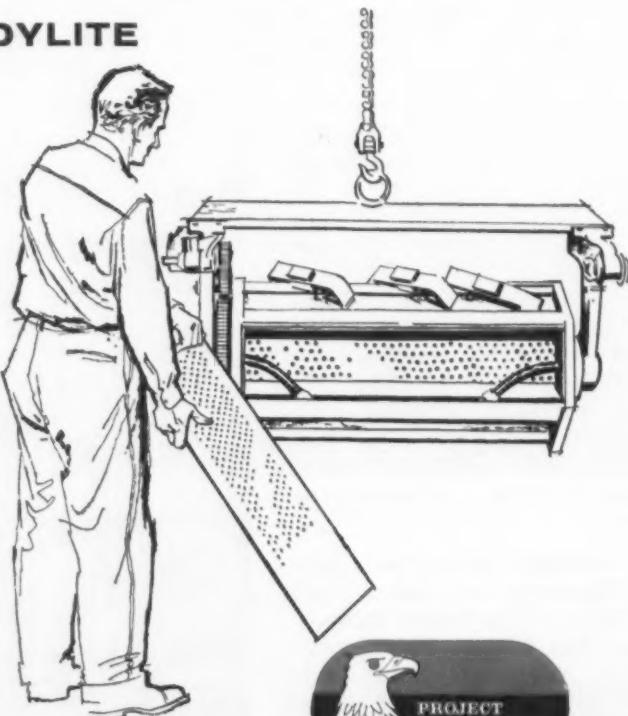
Udylite sales engineer give you on-the-job quotations for repairs or replacements. When your equipment is sent to Udylite . . . you are guaranteed a definite return delivery date. A special department handles your order all the way through . . . costly down time is kept to an absolute minimum.

### **REPAIRS OR REPLACEMENTS BY UDYLITE**

#### **OFFER THESE ADVANTAGES:**

- 1 IMMEDIATE QUOTATIONS** given by Udylite salesman right in your shop!
- 2 ALL REPAIRS or REPLACEMENTS WITH GENUINE UDYLITE PARTS!** You're assured of finest Udylite engineering, highest quality!
- 3 PARTS FACTORY INSTALLED** by trained barrel equipment specialists.
- 4 FAST, GUARANTEED DELIVERY** of equipment sent to Udylite. Special department set up to expedite your order.

Let Udylite help you get your entire plating operation in top working order, ready to go at top capacity. Your Udylite sales engineer will soon be calling on you. But if you need priority service write, phone or wire directly to:



**the  
udylite**  
corporation

detroit 11, michigan • world's largest plating supplier

# Treasury May Scrap Bulletin F

## Plans to Issue Revised Schedule Hit Snag

**Before issuing its modern version of 1942 schedules the Treasury may quiz machine builders and users.**

**Unfavorable comment on the revision could bring new approach to tax depreciation problems.**—By E. J. Egan, Jr.

■ Tedious government efforts over the past 18 months to draft a modern and realistic schedule of the useful lives for machinery and machine tools have hit a snag.

Sources close to the Treasury Dept. say the revised version of the 1942 Bulletin F schedule is being held up and may be scrapped. A new effort to revise the 16-year old table of useful lives may be made.

**Revise or Not?** — The Dept. reportedly had about decided last week to send questionnaires to machinery builders and users. The aim: Finding out whether the labor put into revising Bulletin F has produced a mountain or a mole hill.

Official doubt arose a few weeks ago after the Annual Fall Meeting of the American Machine Tool Distributors' Assn. At the meeting, Joel Barlow, Washington lawyer, tax expert, and consultant to the machine tool industry, sharply criticized businessmen.

**Where Blame Lies** — Industry failed to push for meaningful changes in Bulletin F when it had ample opportunity to do so, Barlow said. "Don't blame the politicians," he declared. "Business really has itself to blame for the depreciation quandary we are in."

After Barlow's speech, Treasury officials put an eleventh hour stop order on plans to issue the revised Bulletin and took a new look at the whole question. Government machine tool experts believed last week that the Treasury's questionnaire would be mailed soon.

The same experts speculated that an unfavorable decision on the current revision might lead to scrapping the useful-life schedule altogether. This could lead to a completely new approach on tax depreciation problems, they say.

**New Writeoff Stressed** — Meanwhile, another industry group advises businessmen to take full advantage of a special depreciation deduction allowed this year for the first time. Taxpayers may write off 20 pct of the cost of new or used

equipment in the year they buy it, provided it has a useful life of at least 6 years and the cost isn't over \$10,000 (\$20,000 for a husband and wife filing a joint return).

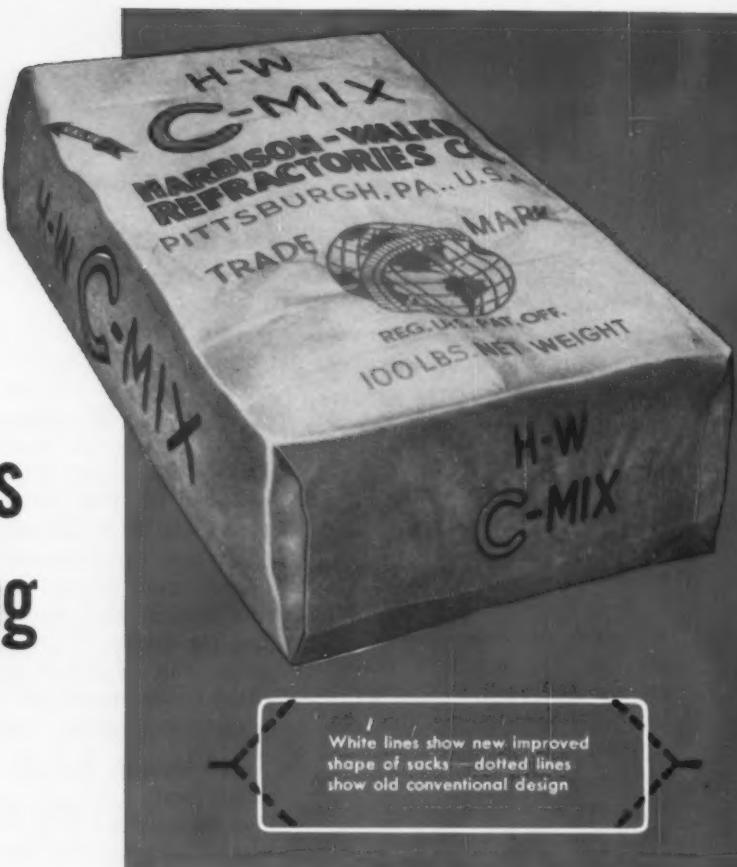
**Benefits Given**—The Machinery & Allied Products Institute says although this special initial write-off is restricted in amount, it will increase the after-tax rate of return for business firms. If there were no dollar limitations, improvement of the after-tax return would be in the 15-25 pct range for firms using either declining-balance or sum-of-digits depreciation.

Another benefit: The 20 pct deduction also increases first-year writeoff percentages, as shown in the accompanying table. MAPI urges management not to "forego these gains."

### How First-Year Writeoffs Compare

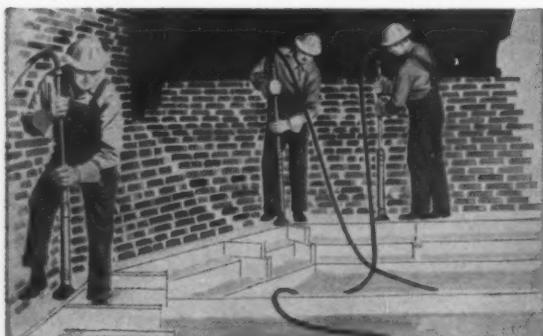
Service Life in Years	Double-Rate Declining- Balance Depreciation		Sum-of-Digits Depreciation		Straight-Line Depreciation	
	Use Extra Writeoff? Yes (pct)	Use Extra Writeoff? No (pct)	Use Extra Writeoff? Yes (pct)	Use Extra Writeoff? No (pct)	Use Extra Writeoff? Yes (pct)	Use Extra Writeoff? No (pct)
6	46.7	33.3	42.9	28.6	33.3	16.7
8	40.0	25.0	37.8	22.2	30.0	12.5
10	36.0	20.0	34.6	18.2	28.0	10.0
12	33.3	16.7	32.3	15.4	26.7	8.3
15	30.7	13.3	30.0	12.5	25.3	6.7
20	28.0	10.0	27.6	9.5	24.0	5.0
25	26.4	8.0	26.4	7.7	23.2	4.0

**NOW...**  
 another added  
 benefit...  
 square-end sacks  
 facilitate handling  
 and storage of  
 Harbison-Walker



## **C-MIX and MAGNAMIX**

**H-W C-MIX** (high purity seawater periclase) used for contour-rammed open hearth and electric furnace bottoms greatly reduces furnace downtime, saves labor and avoids burning-in sacrifice of refrac-



tory superstructure. And with its measurable margin of superior properties, costs are decidedly lower and furnace availability is greatly increased.

**HIGH MAGNESIA CONTENT** — Made from high purity seawater periclase with the magnesia content over 92%, H-W C-Mix best withstands the corrosive action of highly basic slags.

**STABLE** — It is fully converted to periclase and has excellent volume stability with negligible shrinkage at highest operating temperatures.

**HYDRATION RESISTANT** — H-W C-MIX is unique in its high degree of resistance to hydration.

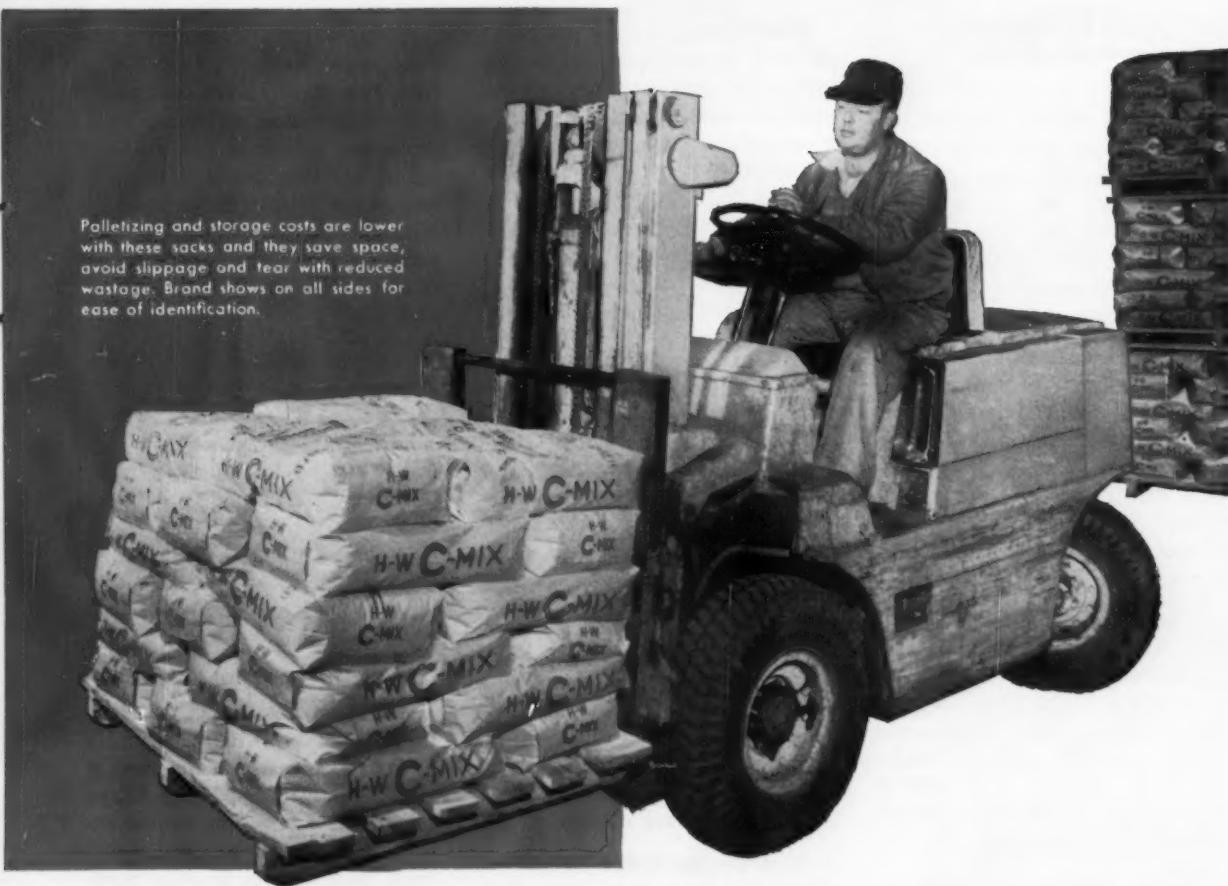
**STRONG** — High strength over the entire range of steel furnace temperatures accounts for its excellent resistance to erosion.

**DENSE** — High density and low permeability retard penetration by molten metal and corrosive slags.

**ECONOMICAL** — H-W C-MIX provides the most durable monolithic hearths with low installation costs.

*World's Most Complete Refractories Service*





## RAMMING MIXTURES

**H-W MAGNAMIX** of 80% magnesia content stabilized as periclase, is made from dead-burned Washington magnesite. It is particle-sized to secure maximum density. While H-W MAGNAMIX is dependable for making new bottoms, it is especially adapted for bank maintenance, patching deep holes and repiping tapholes. It sinters into a hard dense monolith in a very short time at approximately 1000° F. lower than operating temperatures.

**HIGH MAGNESIA CONTENT** — It is used without the addition of slag or scale, thus avoiding dilution of its high magnesia content.

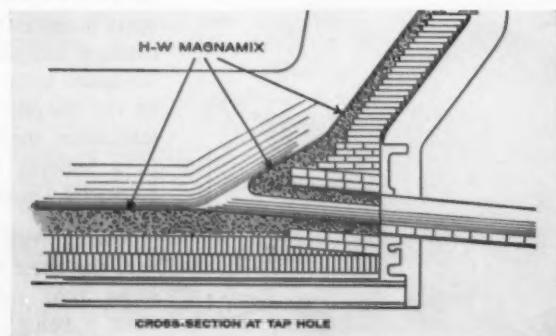
**DENSE** — As rammed into place, it becomes exceedingly dense and impermeable. When heated to operating temperatures, its density is further increased and a homogeneous monolith is formed.

**STRONG** — H-W MAGNAMIX has a strong cold set with the unusually high crushing strength of 1500 psi.

**DURABLE** — Its excellent resistance to erosion ac-

counts for its splendid records and wide adoption in taphole service.

**EASY TO USE** — It has superior properties for patching large holes in banks and bottoms, and is applied by air-ramming, gun placement or by hand in hot patching.



**HARBISON-WALKER REFRactories COMPANY**

AND SUBSIDIARIES

General Offices: Pittsburgh 22, Pennsylvania

## INDUSTRIAL BRIEFS

**Cash and Stock** — Chemetron Corp., Chicago, has acquired three divisions of Cardox Corp., together with Cardox's interests in Dean-Cardox, Witt Ice, and General Carbonic. It cost 165,000 shares of Chemetron common stock and \$2 million in cash.

**Site Is New Haven** — The Metallurgical Research Laboratories being built at New Haven, Conn., by Olin Mathieson Chemical Corp., is scheduled for completion by mid-1959. Costing about \$4 million, the research center will combine laboratories and an integrated pilot-production plant.

**Close to Home** — An all-aluminum aircraft hangar will be erected at Richmond's Byrd Field by Reynolds Metals Co. to house company planes. Foundation work has begun on the \$325,000 project. Completion is scheduled for early 1959. It was designed by the structural design group of Reynolds.

**Double Boiler** — Cleaver-Brooks Co., Milwaukee, originator and manufacturer of packaged boilers, has acquired the Springfield Boiler Co., Springfield, Ill. Transaction necessitates the investment of \$1 million by Cleaver-Brooks, \$500,000 for the purchase of the business with an additional \$500,000 to cover working capital requirements.



**"On an average, the wife controls 80% of the spending. Why isn't that good enough for you?"**

**HEFTY Output** — Four million lb per year of ammonium perchlorate will be the initial capacity of the plant now being built by HEF, Inc., a corporation jointly owned by Hooker Chemical Corp. and Foote Mineral Co., near Columbus, Miss. Ammonium perchlorate is an oxidizer for use in high energy solid fuels for guided missile propulsion. Full-scale production is expected in February 1959.

**Rolling Along** — The Barden Corp. has unveiled its new \$2.5 million plant in Danbury, Conn., for the manufacture of instrument precision ball bearings. In addition to the manufacturing area, the plant contains a cafeteria, dispensary and clinic, and other employee services.

**Two Heads** — M. A. Lebster, Flint Scrap Iron & Metal Co., Flint, Mich., was elected president of the Michigan chapter, Institute of Scrap Iron & Steel Inc. Oscar Shulman, I. Shulman & Son Co., Inc., Elmira, N. Y., was elected president of the Western New York chapter.

**Wire Service Center** — The Wire Rope Div., Jones & Laughlin Steel Corp., have opened a new warehouse in Atlanta, Ga. The warehouse, located at 520 Permalume Place, N. W., Atlanta 18, is a consolidation of the J&L Wire Rope Division's warehouses in Savannah, Ga., and Birmingham, Ala.

**New Zinc Link** — Litemetal Dicast, Inc., Jackson, Mich., producers of magnesium and aluminum die castings, has added a zinc division. To assure isolation from other metals and the prevention of alloy contamination, the division is contained in a building adjoining the main Litemetal Dicast plant.

**Rolling With Bliss** — A new mill with the latest refinements for high speed cold rolling of aluminum sheet is being readied at the Reynolds Metals Co. Alloy plant near Sheffield, Ala. Designed and built by E. W. Bliss Co., the two-high, single-stand cold mill is the first of its type to be installed by Reynolds for sheet operations.

**Birdsboro First** — Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., recently completed modification of existing roll stands in a continuous mill to permit the rolling of universal beams. The conversion, at Northwestern Steel & Wire Co., Sterling, Ill., is the first installation where wide flange beams are rolled on a continuous mill.

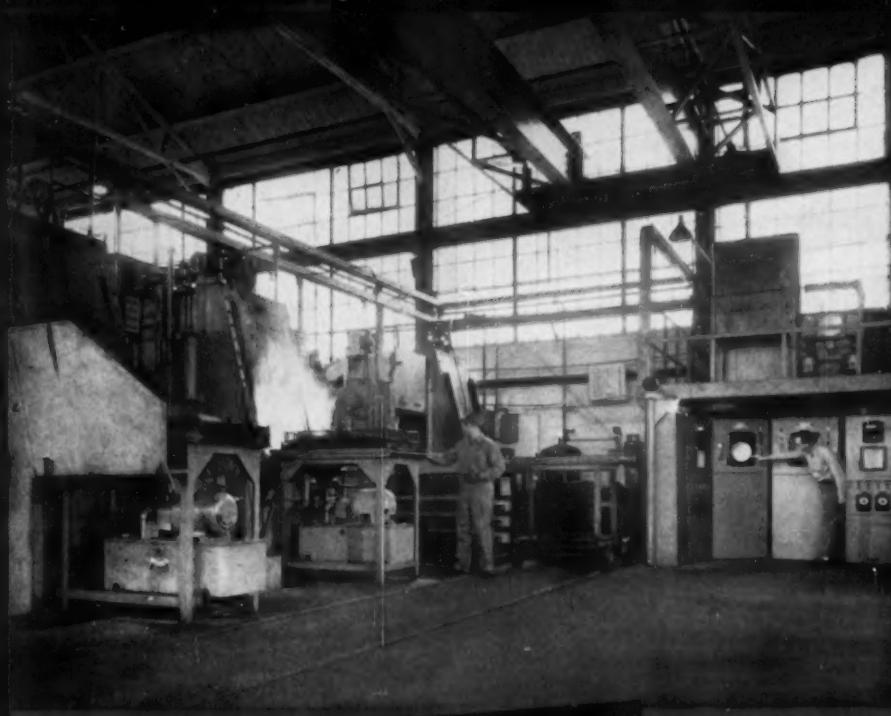
**\$79 Million Better** — The Navy has awarded a \$79 million contract to Douglas Aircraft Co.'s El Segundo, Calif., Division for production of A4D-2N Skyhawk aircraft. Contract is for the third version of the A4D, the Navy's lightest jet night attack airplane. Improved weather and navigation capabilities, pressure fueling, and inflight refueling are advanced features of the A4D-2N.

**Family Matter** — Salem-Brosius, Inc., Pittsburgh, has begun a \$500,000 expansion at the plant of its subsidiary, Alloy Mfg. Corp., acquired last July. The current expansion will add a production machine shop, new plant office building, and X-ray inspection equipment to Alloy's facilities.

**Across Town** — Raybestos-Manhattan, Inc., has moved its San Francisco district warehouse and offices from 131 Mission St. to new quarters at 168 Beacon St., South San Francisco, Calif.

**Gary Gets With It** — Blaw-Knox Co., Pittsburgh, has completed the manufacture of a large universal slabbing mill and auxiliary equipment for the Gary Steel Works of U. S. Steel Corp. New installation will be part of U. S. Steel's modernization program for its Gary Steel Works.

**Chance Expansion** — The A. B. Chance Co., Centralia, Mo., manufacturer of power and communication line equipment, pole line hardware and productive equipment and other products, has opened a warehouse and distribution center at 1622 Second Ave., S. Birmingham, Ala.



## Lindberg-Designed

### Unique Installation Cuts Heat Treating Costs and Improves Quality at Dayton

Here is a remarkable set-up for general heat treating now in operation at Dayton Forging & Heat Treating Company, Dayton, Ohio. Two integral quench atmosphere furnaces, largest of this type ever built by Lindberg, and one atmosphere tempering furnace in a "three-in-a-row" arrangement that simplifies transfer operation. Combined with Lindberg Carbotrol and Hyen generator, the entire furnace operation is completely automatic, including atmosphere control and recording. Planned by Dayton and Lindberg engineers, the installation runs around the clock, six days a week, reducing costs and producing cleaner end products, brighter job finish, freedom from "decarb" and a consistently higher quality of work.

This is another example of how Lindberg equipment and Lindberg planning can help you find the most effective answer to any problem of applying heat to industry. We cover the field, heat treating, melting and holding, tempering, brazing, enameling furnaces, ceramic kilns, high frequency units, and are in the ideal position to recommend just the type of equipment most suitable for your needs. This can be factory built or field-installed in your own plant, fuel-fired or electric, whatever is best suited to your production processes. Consult your local Lindberg Field Representative (see the classified phone book) or get in touch with us direct. Lindberg Engineering Company, 2452 West Hubbard Street, Chicago 12, Illinois. Los Angeles Plant: 11937 S. Regentview Avenue, at Downey, California.



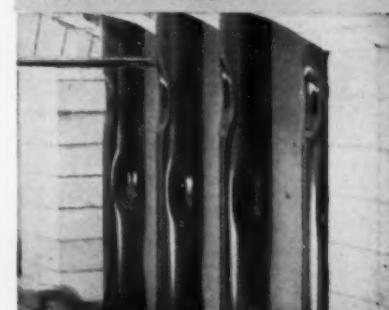
Charles Hewitt, President of Dayton, says, "The Lindberg installation has kept our production at a consistently high quality level."



Work loads are positioned manually, but entire furnace operation is fully automatic.



Lindberg Carbotrol unit automatically controls and records "dew point" and heating cycles of endothermic atmosphere.



Lindberg's "dimple" vertical radiant tubes give remarkably trouble-free service and function at all times at full efficiency.

**LINDBERG** *heat for industry*

## MEN IN METALWORKING



**M. W. Nesbitt**, appointed vice president, sales, PESCO Products Div., Borg-Warner Corp., Bedford, O.

**E. S. Dulin**, elected chairman of the board and **A. W. Rose**, named president and chief executive officer, Byron Jackson Div., Borg-Warner Corp., Los Angeles, Calif.

**M. G. Smith**, elected a vice president, The Electric Storage Battery Co., Philadelphia.

**W. R. McLain**, appointed division superintendent, steel production, South Works, U. S. Steel Corp., Chicago; **J. E. Harrod**, named asst. division superintendent.



**Ross Wilkins, Jr.**, appointed assistant to the president, Great Lakes Steel Corp.

**J. D. Mattimore**, appointed vice president, product engineering and research, Tube Turns Div., Chemetron Corp.

**N. M. Adams**, named vice president, National Aluminate Corp., Chicago, and general manager, Oil Products and Chemical Division.

**Guy Hamilton, Jr.**, appointed executive assistant to the general sales manager, Ford Div., Ford Motor Co., Dearborn, Mich.

**J. L. Sisto**, appointed district sales manager, upper New York sales district, Phoenix Iron & Steel Co., subsidiary of Barium Steel Corp., Phoenixville, Pa.; **H. W. Myers**, appointed district sales manager, southeastern sales district.

**John Knarr**, appointed government sales manager, Baker Industrial Trucks, division of Otis Elevator Co., Cleveland.

**H. J. Egen, Jr.**, appointed manager, tool engineering and metal fabrication, Philco Corp.'s Government and Industrial Div., Philadelphia.

**L. W. Wagner**, appointed Augusta, Ga., district manager, Pangborn Corp., Hagerstown, Md.



**L. G. White**, named president, Alabama Metallurgical Corp.

**S. W. Riley**, appointed chief engineer, Quaker Rubber Div., H. K. Porter Co., Inc., Philadelphia.

**Erik Van Anglen**, appointed district sales manager, New York sales territory, The Atlas Mineral Products Co., subsidiary of Electric Storage Battery Co.

**L. E. Engleson**, appointed manager, Rochester district, Allis-Chalmers Industries Group.

**J. J. Heidenreich**, named manager, production control, Brackenridge Works of Allegheny Ludlum Steel Corp., Pittsburgh; **W. J. Mentzer**, named production planning superintendent, production status; **J. N. Hrivnak**, production status superintendent; **L. E. McClowry**, master planning supervisor;



**W. H. C. Webster**, named vice president, sales, Great Lakes Steel Corp.



**E. P. Hansen**, appointed chief engineer, Allis-Chalmers Steam Turbine Dept.



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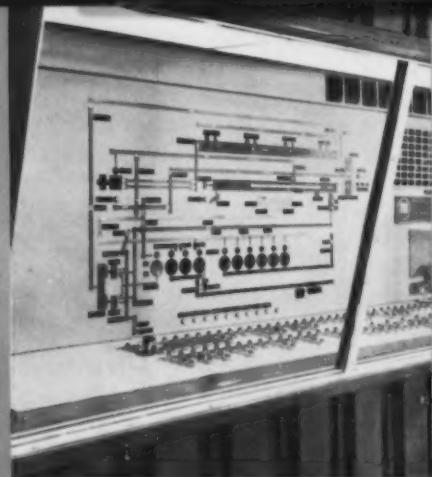
## Historical dates in Continuous Sintering

**1906** The continuous sintering process was invented by Arthur S. Dwight and Richard L. Lloyd following extensive experiments at the Greene Consolidated Smelter in Cananea, Mexico. Patent was applied for.

**1908** The first patents on the process were granted.

**1908** Dwight and Lloyd applied for a patent on the product — a cake of sinter — which was granted.

**1908** The first commercially successful continuous sintering plant was installed at Salida, Colorado at a multi-metals smelter. It marked the establishment of the "straight line" or classic machine, the design that endures to this day.



Richard Lloyd shown charging the Dwight-Lloyd invention machine on the day the continuous sintering process was born. An original photo, preserved in the Dwight-Lloyd historical archives.



**1908** Dwight began his first investigations of a sintered beneficiated blast furnace charge for ferrous industries.

**1909** Dwight and Lloyd granted a license to Lurgi-Gesellschaft to build sintering equipment under the Dwight-Lloyd patents.

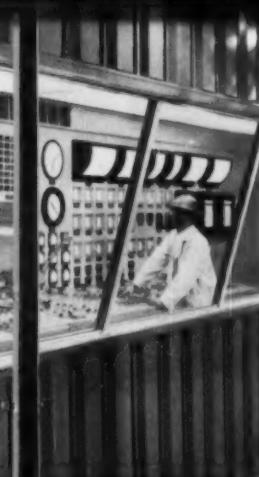
**1911** The first ferrous sintering plant was installed at Birdsboro, Pennsylvania. The plant was designed by Dwight and Lloyd and delivered by a licensee, American Ore Reclamation Company.

**1920** The Dwight-Lloyd Research Laboratories were established to fully investigate minerals processes.

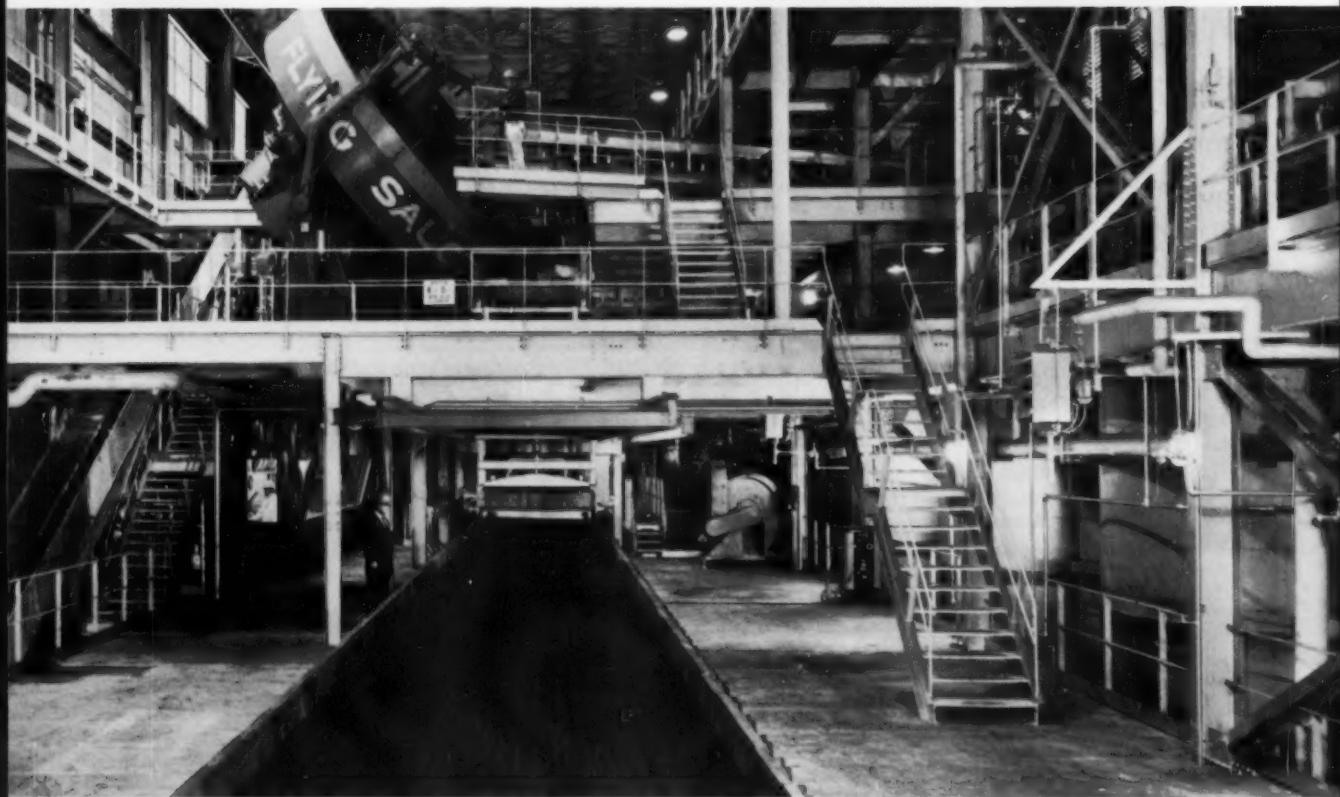
**1955** McDowell Company, Inc. acquired the business and assets of Dwight and Lloyd, including the Laboratories, and moved them to Cleveland, greatly expanded.

*Now*





Left, automated control center for new 5,000 ton per day single strand ferrous Dwight-Lloyd\* sintering plant. Above, general view of plant. Right, the McDowell-developed Flying Saucer®, unsurpassed as a sinter mixing and pelletizing disc.



Flying Saucers charging proportioned feed to Dwight-Lloyd machine at Ohio Works, U. S. Steel Corp.

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to quickly clean oil, grease, soil and dirt from any metal surface from small parts to heavy machinery.

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### Adding to Soluble Oils

a 1:50 mixture gives cooler work, better tool life, better finishes, additional rust protection.

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to insure swift and complete removal in cleaning.

### Plating

to remove all surface residues in preparation for plating and as an additive to final rinses.

### Honing

to aid in heat convection and release stone dust.

### Cutting

to increase penetration, lower surface tension, insure cooler work, better finishes.

### Grinding

to increase heat convection of coolant, wet out metallic silt and wheel dust.

### Tumbling

to shorten the cycle, insure cleaner, rustproofed work.

### Degreasing

to reduce costs, improve results, eliminate dermatitis and other hazards.

### Solvent Replacement

to remove cutting oils from machined parts, at lower costs, without hazards.

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one part to 2500 parts plain water, prevents rusting.

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### Heat Convection

to increase the convection property of plain water used for cooling, frictional heat or quenching.

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to insure faster penetration of liquids.

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to carry them off and clean the receptacle.

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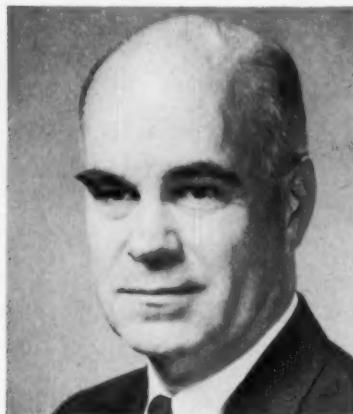
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Service Representatives in Principal Cities

**T. J. Erdley**, process and application supervisor; **P. L. Kane**, named No. 3 production scheduler.

**J. C. Pugh**, appointed asst. manager, St. Louis district sales office, U. S. Steel Corp.



**R. L. Davidson**, named director, chemical research, Research Div., Armco Steel Corp., Middletown, O.

**C. A. Anderson**, appointed assistant general manager, Bay City Foundry Co., Bay City, Mich.

**W. H. Trout**, appointed divisional controller, The Carpenter Steel Co.'s Alloy Tube Div., Union, N. J.

**R. H. Ebersole**, named district manager, Detroit sales office, Federated Metals Div., American Smelting & Refining Co.



**Dr. A. L. Feild**, named director, stainless research, Research Div., Armco Steel Corp., Baltimore.



**K. Oganowski**, named director, metallic coatings research, Research Div., Armco Steel Corp., Middletown, O.

**James Vrungos**, appointed manager, marketing, Electronic Controls Systems, Div. of Stromberg-Carlson Co., Los Angeles.

**R. B. McMullin**, appointed extrusion product manager, Kaiser Aluminum & Chemical Sales, Inc.

**L. W. Tobin, Jr.**, appointed manager, Milwaukee operations, AC Spark Plug Div. of General Motors Corp.; **A. A. Hendrix**, named asst. manager, AC-Milwaukee operations.

**J. W. Peterson**, appointed field engineer, Norton Co.'s Philadelphia district office.

#### OBITUARIES

**V. F. Stine**, 65, president, Pangborn Corp., Hagerstown, Md.

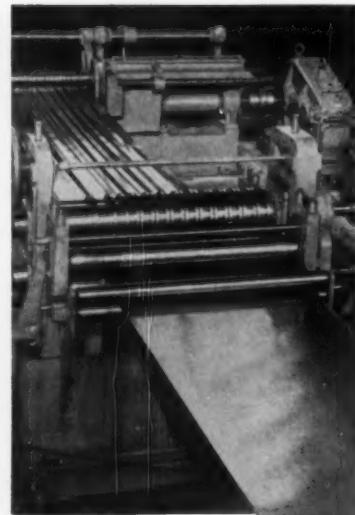
**T. S. Holden**, 72, vice chairman and former president, F. W. Dodge Corp.

**A. G. Rorabeck**, chairman of the board, The Geo. Worthington Co.

**J. K. Watkins, Jr.**, 64, chief engineer, Crucible Steel Co. of America's Midland Works.

**W. B. Nixon**, 47, supervisor, consumer product markets, Armco Steel Corp., Middletown, O.

**H. J. Clewell**, 62, purchasing agent, Phoenix Metal Cap Co., Chicago.



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New "Comapro" project cuts machining time up to 30%...

## GULF MAKES THINGS

Only five months under way, the Cooperative Machining Project known as "Comapro" has already developed unusual time-saving and cost-cutting machining practices, using Gulfcut Cutting Oils.

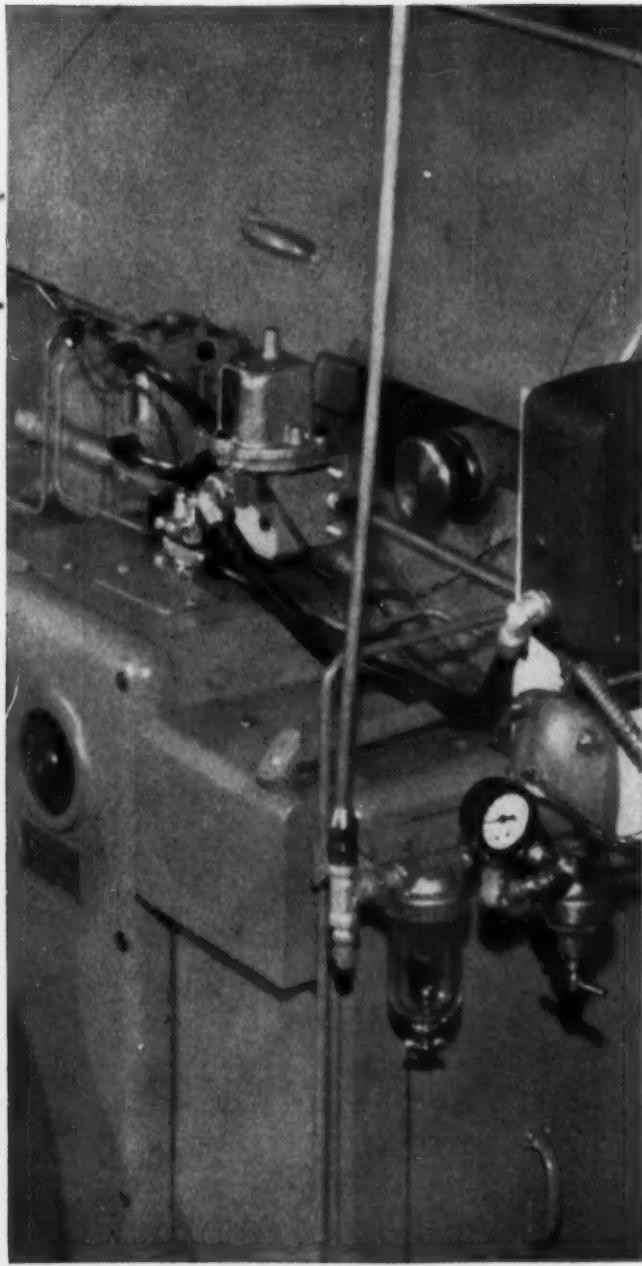
A case in point is the machining of a simulated spark plug shell at the COMAPRO Department of one of the participating manufacturers—Cone Automatic Machine Company, Windsor, Vermont.

Using Gulfcut Cutting Oil in a Conomatic bar ma-

chine, they're running this spark plug part in 4.4 seconds, compared to an industry average of 6 seconds. A 30% saving in machining time!

This is right in line with the over-all objective of "Comapro"—to develop more efficient ways to cut the cost-per-part figures in a wide variety of machining jobs, particularly in mass production. Findings will be made available to the entire metalworking industry.

As a co-sponsor of "Comapro," Gulf supplies all the



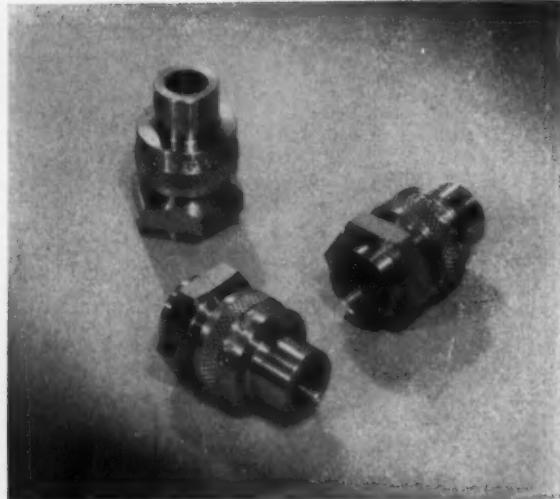
and proves again

# RUN BETTER!

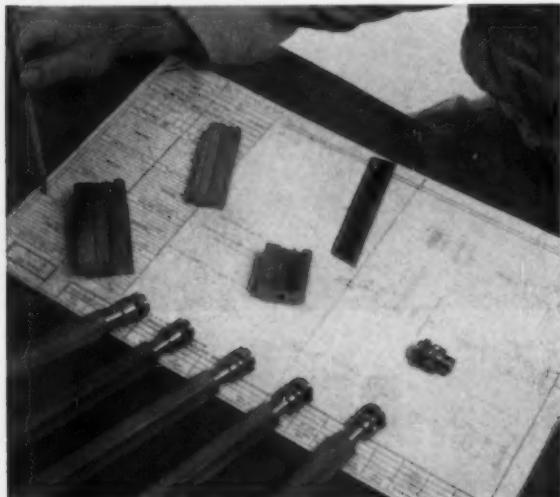
cutting oils for the project, from the complete Gulfcut line—plus Gulf greases and machine lubricants. Under closely controlled research conditions, the proof is piling up that Gulf makes things run better!

Let us help you put "Comapro" findings to work in *your* production—and show you how Gulf makes things run better in your plant, operation-wise and cost-wise. For complete information, call a Gulf Sales Engineer at the nearest Gulf office.

THE IRON AGE, November 27, 1958



Lower cost per piece—on a great variety of machined parts—is the main goal of the "Comapro" cooperative cost-research program. For complete information on the latest findings of the project, write to COMAPRO, c/o Cone Automatic Machine Company, Windsor, Vermont.



◀ This Conomatic automatic bar machine is a pilot unit in the "Comapro" research project. Gulfcut Heavy Duty Soluble Oil helps it operate at maximum output, to determine best machining practice at lowest cost per part.

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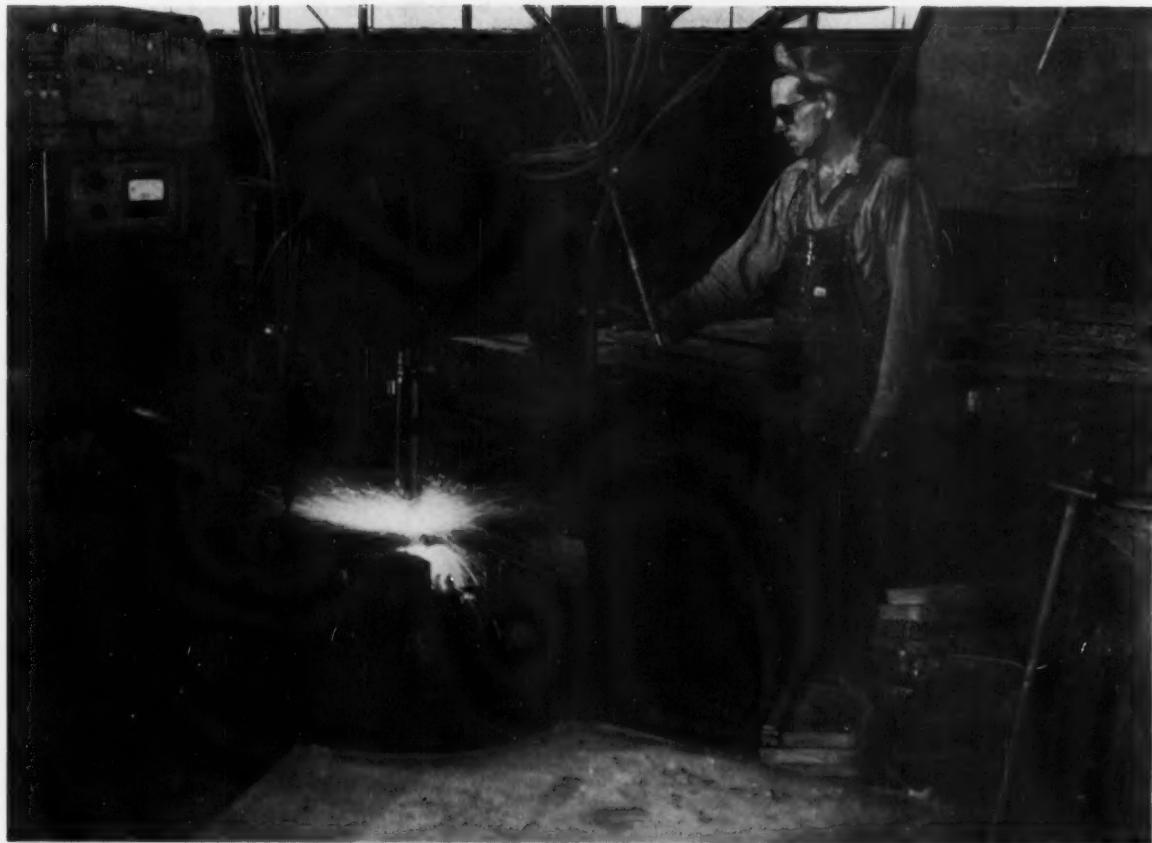
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**FIRST STEP:** Flat sections to make half elbows are cut from Type 304 stainless plate by powder cutting.

## Fabricator Sets Up "Countdown" To Insure Top-Quality Welds

By R. F. Gurnea—Chief Metallurgist, Midwest Piping Co., Inc., St. Louis

**Building sure performance into critical welded structures is a step-by-step process.**

**Yet inspection is often held off until the very end.**

**Here's a case for a test program that keeps pace with each stage of production.**

■ Insuring perfect welds on critical fabricating jobs takes a little something extra in quality control. Midwest Piping Co., Inc., St. Louis, does it with a "countdown" technique akin to those popularized by missile launching teams.

The firm showed the value of this approach recently on a tough order: making a number of 16-in. diam

stainless steel elbows for the reactor cooling system of the Navy's first nuclear powered cruiser.

**Job Seemed Simple**—Mechanically, the job was simple enough for this long-time producer of fittings for power piping. It involved (1) cutting blanks from suitable plate material, (2) forming each blank into a "U" with a 90° bend,



**BEFORE WELDING:** Inert gas tungsten arc equipment bevels edges of "U"-shaped elbow halves for single V-groove welding to follow.



**TAKING SHAPE:** Early "countdown" check consists of grinding the root pass and using a dye penetrant to search for surface cracks

(3) welding pairs of "U" sections into cylindrical elbows, (4) annealing the welds, and (5) machining the elbow ends.

The real challenge was to build dependable performance into these fittings. The material chosen was Type 304 stainless, and its useful properties had to be developed to the fullest possible extent. To this end, Midwest's contract specified numerous checks on elbow quality, including "water clear" X-rays of all welded areas. To be doubly sure of top workmanship, the firm added a few tests of its own.

**Starting the "Countdown"**—The quality control "countdown" actually began before the plate material left the steel mill. U. S. Steel Corp., the supplier, ran chemical analyses, corrosion tests, and tensile tests in its own labs. It also checked plates ultrasonically for laminations or other defects in the presence of Midwest representatives. On delivery, the St. Louis firm analyzed the steel again—just to be certain.

Blanks of the proper shape were then cut from these plates by the iron powder method. To avoid any contamination from undesirable iron oxides, rough edges of the blanks were ground back  $\frac{1}{8}$  in. Aluminum oxide wheels were used to guard against any further pickup of contaminants during the grinding process.

After edge grinding, blanks were hot pressed into a "U" shape with a lateral 90° bend. The forming lubricant was also chosen carefully for its non-contaminating qualities.

**Novel Way to Bevel**—Next, the  $1\frac{1}{8}$ -in. thick edges of the "U" sections were beveled for single V-groove welding, using inert gas tungsten electrode equipment with argon and hydrogen. In effect, the angle of bevel boosted wall thickness to more than  $1\frac{1}{2}$  in., yet this unusual cutting technique worked efficiently.

Although the beveled edges showed little oxidation, they were ground to prevent any chance of contamination. At this point, a dye-

penetrant check was made for evidence of surface cracks.

Pairs of "U" sections that passed this test were then put in a jig and tack welded. Next, the root pass and one additional pass were made manually from the outside, using certified Type 308 lime covered electrodes supplied by Arcos Corp., Philadelphia. Following this, both sides of the weld were ground and again checked for cracks with a dye penetrant.

**First X-ray Check** — Another manual pass was made inside the elbow before taking it out of the jig. At this point, the first X-ray check was made for weld soundness below the surface.

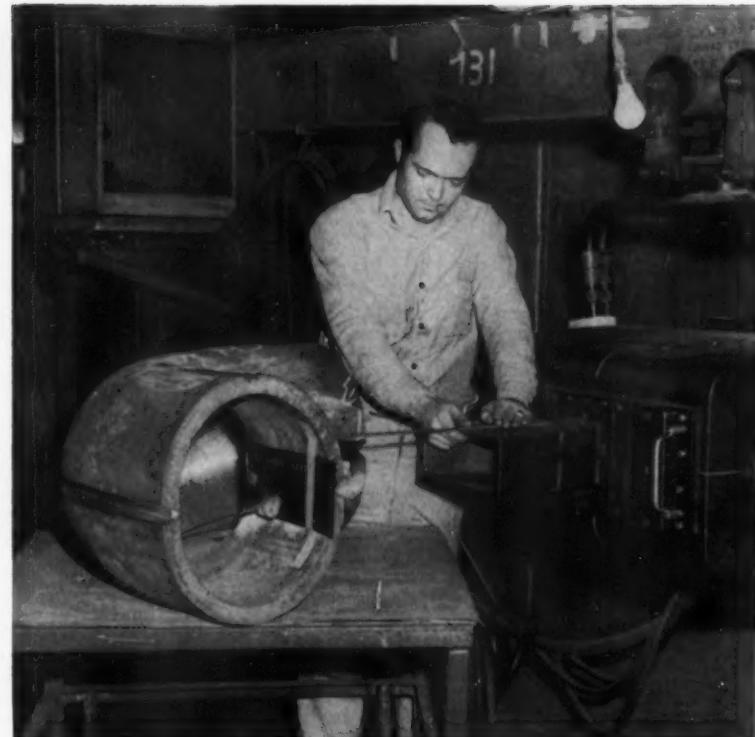
Submerged arc welding finished the job from here on, using Arcos Type 308 bare wire with a bonded flux designed for stainless material. To keep the generated heat below 250°F, heads were welded on the elbow ends and cold water was circulated inside the fittings.

Half-finished welds were again X-rayed a second time. Then, following the last pass, all weld areas were ground smooth for still another check with X-ray and dye-penetrant.

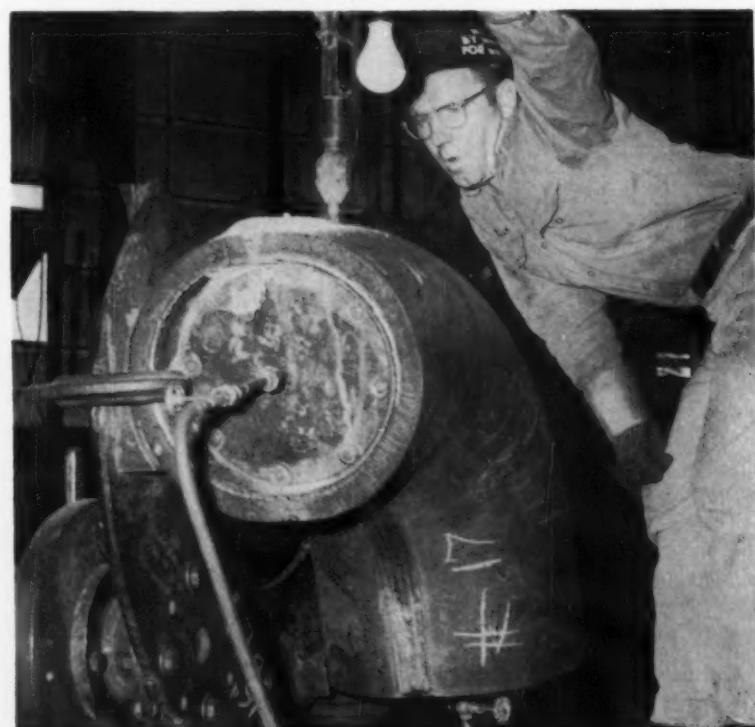
**Compressed to Size** — Sizing came next for all elbows that had passed the "countdown" checklist to this point. Having been purposely made slightly out of shape and over-size, the fittings were heated under instrument controlled conditions and compressed to final dimensions in accurately machined dies. This operation also hot worked the welds and adjoining heat affected zones.

Finally, to induce maximum mechanical properties, elbows were heated to 1925°F and water quenched. Once more a dye-penetrant check was made—this time of the entire fitting.

**Tests Go On** — Fabrication was complete at this point—except for machining the elbow ends. But the test program continued. Still required, for example, was a bend test on a 2½-in. wide ring of excess



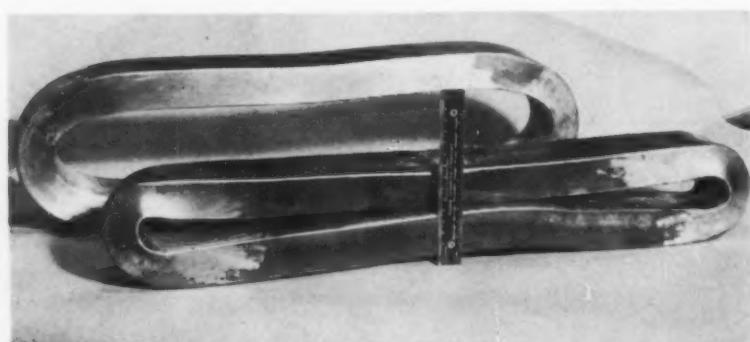
**A LOOK INSIDE:** Partially finished weld must show up "water clear" on X-ray film. All subsequent radiographs must be equally clear.



**HOLDS HEAT DOWN:** Cold water circulates inside elbow to keep temperature below 250°F during automatic submerged arc welding cycle.



**SOUND PROBE:** Fully welded elbow is inspected ultrasonically before it is compressed to final size in accurately machined dies.



**MORE THAN NECESSARY:** Test rings flattened specified amount (rear) and more (front) show no cracks in highly stressed weld areas.

metal cut from each elbow fitting. Specifications called for flattening the ring so as to stretch the outside of each welded joint. Full flattening was not required, but Midwest did so without cracking any welds.

A similar and equally severe reverse bend test was also made of metal in the root of each weld, on the inside of the test ring.

Tensile tests on 100 pct weld metal specimens, and on others containing both base metal and weld metal, also showed strengths well above the required minimums.

**Drillings Analyzed** — Chemical analyses warrant special mention as an important part of the "countdown" schedule. At specified times during the welding stage, the com-

pany sent weld drillings to the Navy for analysis. It supplemented these requirements with tests of its own on the submerged arc welds. This was done to observe the effect of arc length voltage on the chemical composition of the deposits. To prevent "burning out" any essential elements, every possible control was used to keep voltages constant and correct.

Sections from completed fittings also received a copper sulphate corrosion test. This, in effect, judged the quality of heat treatment. Inadequately treated material would not have passed. The company, however, was also interested in the corrosion resistance of welds apart from the plate material. It exposed

weld specimens to much stronger acids which they resisted well.

**Pressure Test is Climax** — For a "proof-of-the-pudding" strength test before final machining and surface finishing, elbows were filled with water and subjected to 3750 psi internal pressure.

After a final machining, plus grinding and sand blasting with non-contaminating materials, elbows got their last checkup. They were measured for proper dimensions, rechecked with dye penetrant, and weld areas were again X-rayed. For safe shipment, fittings were finally wrapped in protective paper and placed in specially designed boxes.

By producing test records that promised dependable performance from each elbow fitting, the "countdown" justified the emphasis it received. But it could not have done so without an acute awareness of the challenge at every step.

**Need Skilled Personnel** — For example, all welders assigned to the project first had to qualify under Military Specification 248 as well as Section IX of the ASME Boiler Code. The ability to produce welds that showed "water clear" on X-ray film was essential.

In addition, competent personnel supervised every step of the fabrication and test programs. This staff included a special technician as a liaison man between the production department and the laboratory. He covered developments hour by hour to spot problems and report them for quick attention.

Even the handling of fittings was carefully planned to avoid their contamination by undesirable materials. Wooden pallets and rope slings were used wherever possible. If fork or hook lifts made of metal had to be used, they were first overlaid with stainless steel.

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# Skull Furnace Is Versatile

**Ideal for melting reactive metals and special alloys, the skull furnace eliminates the ceramic crucible, melts quickly under vacuum.**

■ The skull furnace is proving to be a versatile production tool—in addition to its contribution to metals research. To date, it still provides the only means for making non-contaminated castings of reactive metals. But it also has other advantages over conventional casting processes — speed, freedom from contamination, and a built-in vacuum system.

A skull furnace's prime function is making castings in vacuum or inert atmosphere. Its name derives from the skull of metal that remains in the crucible after the heat is cast. The skull, in turn, is formed when molten metal comes in contact with the water-cooled crucible and freezes. A skull is made for each alloy and is used indefinitely.

**Eliminates Ceramic**—The key advantage of the skull furnace over the induction vacuum casting furnace, according to a recent Westinghouse Electric Corp. report, is its elimination of the ceramic crucible. Contamination from the crucible is avoided and higher melting temperatures are permissible. Higher temperatures extend the range of refining and degassing metals.

The Westinghouse report provides a complete analysis of both design and application aspects of a skull furnace designed by the company's Blairsville, Pa., plant. The unit, shown on this page, is designed for an 8,000 amp power supply, but can be modified to take up to 16,000 amp. It can melt consumably or non-consumably. In non-consumable melting, a syntron vibrator in a special housing feeds in the raw material.

**High Vacuum** — A heavy steel

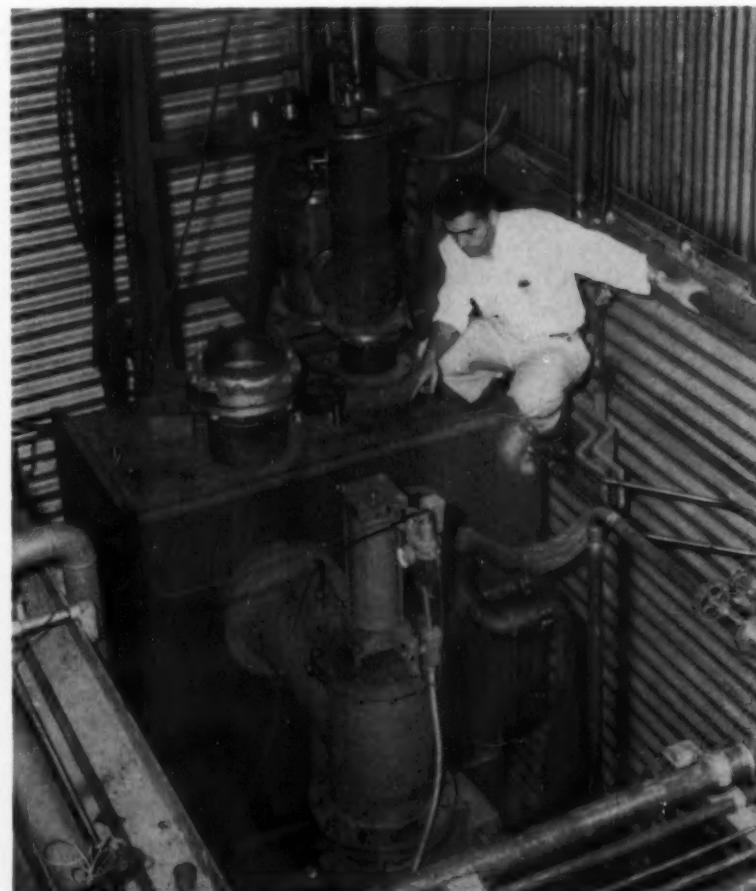
housing contains the crucible and mold. The volume of the evacuated chamber is about 65 cu ft. The vacuum system combines a 130 cfm Kinney mechanical pump and a 2,000 KS high vacuum pump.

The crucible is a water-cooled copper cylinder 7 in. diam and 14 in. high. A variety of crucible sizes can be readily installed. The mold is positioned perpendicularly to the crucible. Mounted on trunnions, the crucible may be tilted for pouring.

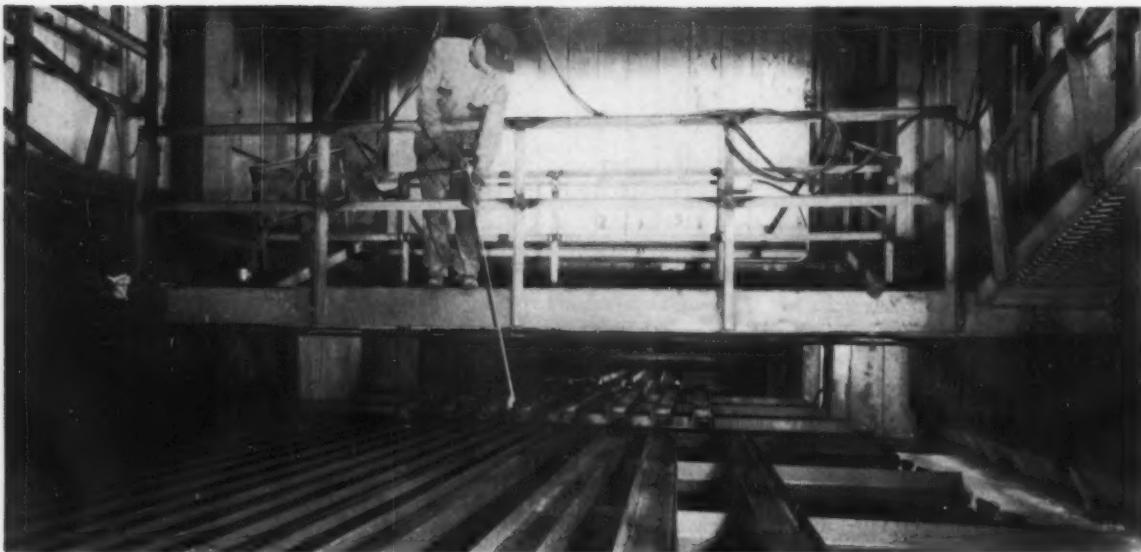
**Hot Topping**—When the power is turned off at the end of a melt, an air cylinder rapidly withdraws the main electrode to clear the way for

the tilting crucible. The crucible is provided with a magnetic stirring coil. Hot topping of cast ingots is handled by a second electrode linked to the same power supply as the main electrode.

Because it eliminates crucible contamination, the skull furnace is ideal for melting reactive materials like titanium and zirconium. High temperature alloys can be cast at fast rates with cleanliness and excellent mechanical properties. Small ingots can be made homogeneous by combining fast melting rates with magnetic stirring and high superheat under controlled conditions.



**REACTIVE METALS:** Skull furnace melts titanium, zirconium, and high temperature alloys at fast rates on a regular production basis.



**CONVENIENT STATION:** Beams of random size pass under adjustable paint bridge in downdraft spray booth.

# Conveyor Runs Structurals Through Paint Line

**Mechanized handling can cut costs even with heavy structural sections.**

**This setup carries random sizes through paint line without need for turning or shifting.**

By R. H. Eshelman  
Engineering Editor

■ To set up a production spray paint line for structural steel parts is a big order. How can you handle 130-ft girders, channels, trusses, angles and plate all on the same conveyor?

That was the problem faced by The R. C. Mahon Co., Detroit, producers of bridgework and fabricated structurals. As a specialist in conveyorized painting and drying booths, the firm felt it could use its own engineering talent to make best use of space.

**Stress Handling** — Wallace Herlein, executive vice president, explains that many job shops "think of added capacity only in terms of static equipment and more space." His answer: When production begins to crowd you it's time to consider conveyors.

Although the firm has engineered and built moving paint lines for many industries, this one had to be different. It was a matter of handling heavy objects in a wide array of sizes and shapes.

Key to the success of the line is the diamond-shaped cross section of the load bars. The bars drop in slots on each conveyor track and are added or taken away as the load requires.

**Point Contact** — Big advantage of the diamond shape is that it gives point contact with the piece to be painted. This allows almost complete spray coverage of even sheet or plate pieces.

Further, the diamond edge on the bottom gives the painter greater clearance on the underside. This shape of bar provides maximum load strength with the long axis of the section vertical.

Of the two paint booth setups, one sprays the top, and the other the bottom of a piece. For maximum production two operators stand on a bridge above the conveyor and two in the updraft spray booth below. The normal force is one in each position.

**Bridge Adjusts** — The bridge in the top booth is adjustable. By pressing a push-button the operator can raise or lower it to proper height for pieces coming through the line.

There's a safety interlock that stops the conveyor if any steel coming through should strike the bridge. Maximum clearance is 4 ft.

Pressurizing of the entire spray booth area carries away excess paint and fumes rapidly. The tempera-

ture-conditioned air enters and exhausts at rate of 100,000 cfm.

**Ducts Direct Air** — Diversion ducts from the intake fan and air conditioning unit direct the air streams to give downdraft over the top spray unit and updraft over the bottom unit. Waterfall curtains at the sides remove paint overspray from exhausted air.

Total length of the line, with loading and unloading sections, is 400 ft. This includes the drying tunnel and runout conveyor of 100 ft.

To handle longer parts, a yard crane picks up the end and walks it out as the conveyor carries it to the end of the line. If desirable, the firm can add more conveyor sections to further speed unloading.

With a width of 15 ft, full average load capacity is estimated at 6000 lb per minute, or about 180 tons per hour. Conveyor speed can be varied from 2-10 fpm. Limit of tonnage volume is seldom approached, since it can only be done with beams closely spaced.

**Note Advantages**—Of the many immediate advantages, one is that amount of handling is greatly reduced. The fact that painters don't have to turn a piece over means a 50 pct savings.

Further, the conveyor line greatly speeds paint production. Another payoff is improved quality.

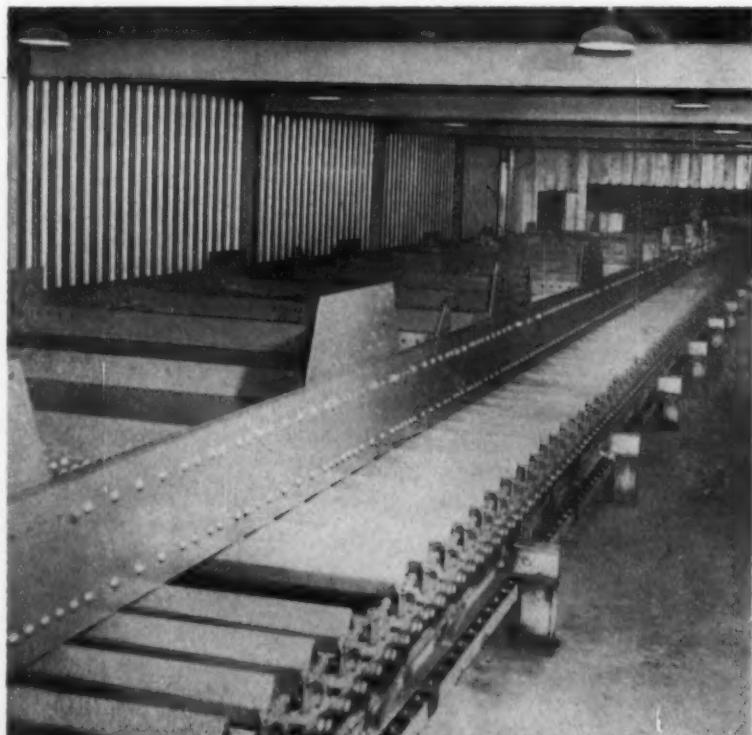
Steel is always at room temperature when sprayed to give much better coating than when it's painted in an unheated bay or yard. The new setup releases several thousand square feet of expensive floor space for more productive operations.

**Rapid Payoff** — Although estimated investment in the installation is around \$200,000, the firm feels it will pay for itself easily in a two-year period. This considers only direct savings, not the more intangible benefits.

The line permits flexibility in scheduling, since operators can switch from one paint to another in a few minutes. This is real advantage where each state specifies its own bridgework finish.



**UNDERSIDE TOO:** Operator in pit-type booth sprays large girder as it passes overhead on conveyor. Updraft removes paint-over spray. Diamond-shaped load bars allow operator to give almost complete spray coverage.



**HEAVY LOAD:** Large girder passes through drying tunnel after being painted in dual spray booths. Total length of line is 400 ft. To handle extra long parts, yard crane can pick up end as it reaches end of conveyor.

# New Spray Aids Buffing Quality

**How much a quality finish costs hinges on process efficiency.**

**A new liquid buffing compound allows an appliance maker to get a quality finish without paying penalty of high costs.**

■ A quality finish on a household appliance is often the selling point in this competitive field. For the maker, it's a problem of holding down costs.

Here's how Sunbeam Mfg. Co.,

Chicago, has achieved such quality in its aluminum electric fry pan. A series of polishings and buffings with frequent solvent cleanings produces the bright finish. Both automated and manual operations apply on the processing line.

It starts with die-castings in several sizes with the heating element already cast in. An aluminum brightening dip cuts away fingerprints, dirt and grease.

**Polish First**—Castings are rough and die marked when they come from the foundry. Polishing re-

moves major defects so that they can take a high color finish.

Insides are hand-polished on lathe-mounted buffs. Automatic units, using aluminum abrasive belts, polish the outer sides.

Hanson - Van Winkle - Munning Co., Matawan, N. J., supplied the lubrication equipment for these steps. A series of spray guns apply polishing oils to hold down the friction temperature. As the work progresses from head to head, finer grits are used.

**Spray Unit for Buffing**—After polishing steps trim the surface, overhead conveyors transfer pans from station to station on plastisol-coated racks. A liquid-compound spray system, also supplied by H-VW-M, serves in the buffing of the outer pan sides.

Spray guns are mounted on an automatic buffing machine. The system uses H-VW-M's No. 743 tripoli buffing compound.

Cleanliness plays an important part. The finishing operations include four cleanings, two power washes with a chlorinated solvent, a vapor spray of the chlorinated solvent for degreasing and a steel-wool cleaning.

Testing of heating elements takes place on an endless belt fitted with outlets into which the pans are plugged. This step dries up moisture picked up in the various baths.

**Minimize Wear**—At the operator's station, an ammeter constantly measures the pressure of each buffing head on the work. As the buff wears, the operator maintains uniform pressure by making adjustments with a jack. However, the liquid-compound system minimizes pressure drop through reduction in buff wear.

Called "Liquimatic," the spray system consists of three elements: A heavy-duty, long-stroke, air-actuated pump with built-in pressure regulator and gage; automatic



**PRODUCTION SETUP:** Operator feeds pan into automatic buffing machine. Liquid compound helps get high color finish and cuts buff wear.

spray guns fed by three lines; and a master control that meters out a precise amount of compound at each gun head.

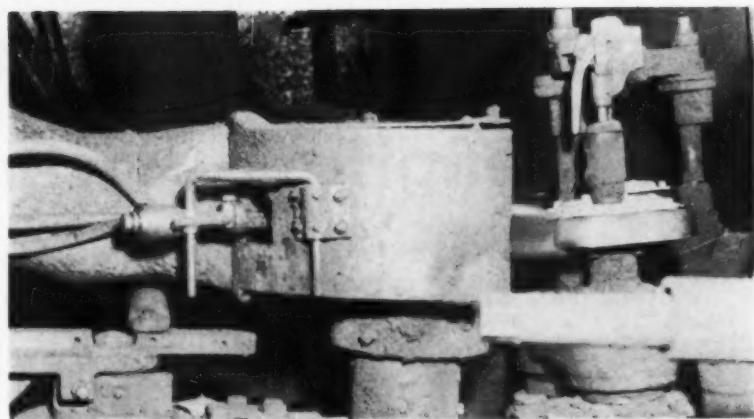
The pump, specially engineered for delivery of emulsified abrasive compounds, adapts to either 30- or 50-gal drums. Sunbeam prefers to use the 30-gal size.

**Uniform Pressure** — The pump maintains uniform pressure throughout the system without line loss. The gun or bank of guns farthest from the compound drum gets the same pressure as units close by.

Each spray gun adjusts individually for the amount of compound, angle of attack and pattern of spray. A side port control sets the pattern of the spray.

Turned fully clockwise, it delivers spray in a circular pattern; turned counter-clockwise, the control forms a fan-shape pattern of adjustable width.

**Fan - Shape Pattern** — Working with H-VW-M engineers, Sunbeam found a fan-shape pattern that cov-



**AID TO BUFFING:** Spray gun (left) applies buffering compound to improve buffering action and reduce buff wear. Screw on side of gun sets pattern.

ers the entire width of the buffering head best suited to this spray-lubrication operation.

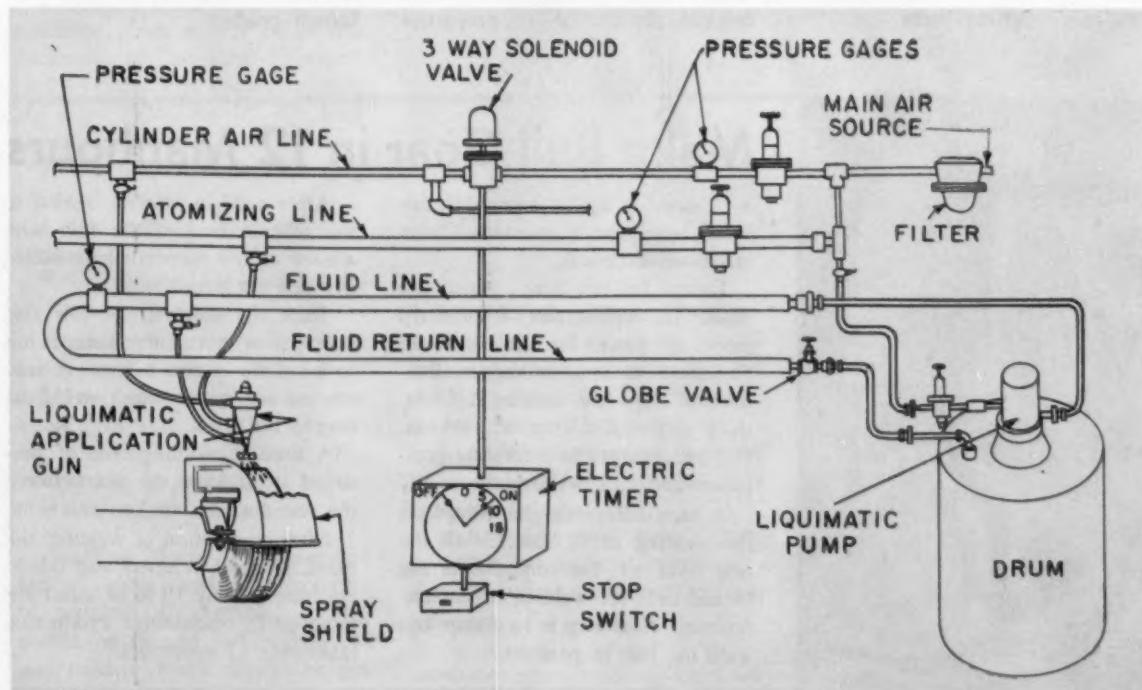
A needle valve regulates the output and compensates for gradual wear of the tip by the abrasive compound. Replaceable tungsten carbide tips and liners on the spraying orifices minimize wear.

In each gun, a three-way internal

valve eliminates spitting and dripping. A single timer controls all heads. It sets the time each gun operates and the interval between sprays. Individual adjustments set the amount of compound delivered by each gun.

The compounds, being water-soluble, do not gum up spray guns. Easy cleaning of equipment cuts downtime for maintenance.

## How Spray System Meters Compound



# Design Welded Machine Parts For Strength and Economy

By R. A. Wilson—Director of Application Engineering, The Lincoln Electric Co., Cleveland

**What's your machine-design problem. Strength? Rigidity? Vibration? High cost?**

**Many designers find the answers to problems like these with economical steel weldments.**

Weldments used as machine parts offer the happy combination of high quality and low cost. Both these benefits stem from efficient use of low cost rolled steel sections joined by arc welding.

Most designers know that hot rolled mild steel is the lowest priced fabricating material. They also know that steel is strong—that it won't shatter under impact loads. Still, many of them fail to realize how these economy and strength factors can be combined to produce low cost machine parts.

**Low-Cost Rigidity** — Consider these facts. Machines are designed to be strong enough and rigid enough to function without failure or excessive deflection under load. Of the two requirements, rigidity is the important one in most machine designs. Because rolled mild steel is as rigid as the most expensive high-tensile steel, whether rolled or cast, it can't be beat for providing rigidity at lowest cost.

Where strength is the design criterion, welded fabrication lets the designer use high-tensile rolled steel in those sections that require it.

The first major step in any weldment design is to determine section properties that will handle anticipated loads without exceeding deflection or stress limits. On an original design, these properties

must be calculated. When a former design is converted to a weldment, a reliable shortcut is available.

**How Much Steel?** — Assuming the former part worked well, a welded steel part with comparable strength and rigidity would be equally satisfactory. How much steel will it need? Handy conversion factors have been worked out to answer this question. They equate the strength and rigidity of steel to various other materials.

However, if the former section was thicker than it needed to be to carry the load, it should be reduced to a reasonable value before applying the steel-conversion factor. And designers should remember that a weldment doesn't necessarily have to look like the former product.



## Make Bull Gear in 12 Manhours

Almost 3 ft in diam, this finished bull gear is machined from an all-welded blank.

Except for two rings, which are made in semi-circles from strip stock, all pieces for the blank are flame cut to circular shapes. Production steps are simple: A  $1\frac{1}{2}$ -in. thick disc and a ring of  $3\frac{1}{4}$  in. OD are clamped to a rotating positioner and tack welded.

A semi-automatic gun completes the welding at 12 ipm. With the first weld set, the components are turned over for welding of circumference. Next step is to clamp and weld the hub in position.

After a 27-in. disc is welded to the reverse face of the hub with a hand unit, a support ring is added between the two discs.

Since the diameter of this ring is less than that of the discs, it has to be made in two halves. A submerged-arc system finish welds the ring to the discs.

A final reinforcing ring of hot-rolled steel closes the slot between the two discs.

After completion of welding, the blank is stress relieved and finish-machined. Only 10 lb of metal are removed in machining. Production takes only 12 manhours.

After determining section properties, the designer must decide what part configuration will provide them in the most efficient and economical way.

**Use Weight Wisely**—One way to use steel more efficiently is to put it as far out from the neutral axis as possible. A 1-in. square 3 in. from the neutral axis is equivalent to a 3½-in. square centered at the neutral axis. Standard "I" or "H" sections or special fabricated sections are much better for bending loads than solid plate or bar stock.

Where machine bases and other parts must withstand twisting loads, diagonal stiffeners greatly reduce the amount of steel needed. They can boost torsional rigidity a hundred fold.

Moreover, standard sections are usually less costly than special sections made by cutting and welding plate. An exception occurs when the closest standard size is much heavier than need be.

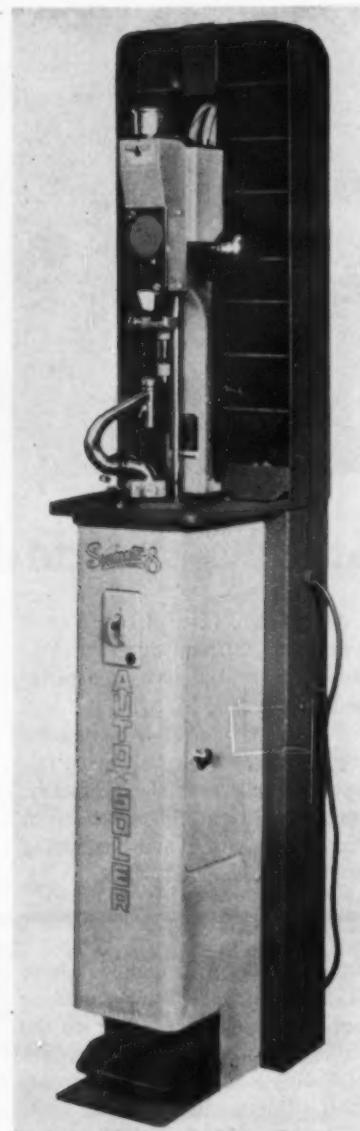
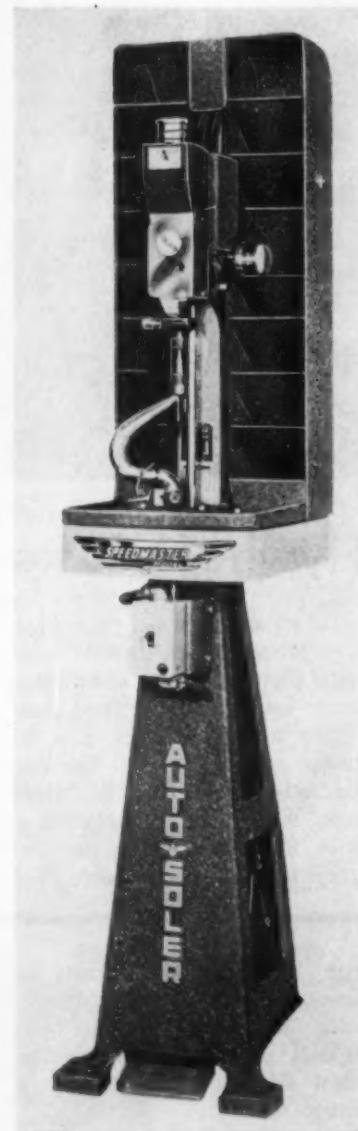
**Check These Ideas**—Here are some other ways to reduce material costs:

1. Use diagonal bends or pressed ribs for added stiffness in flat sections.
2. Set the finished thickness of machined parts slightly below the thickness of available standard steel sections. You reduce machining costs by taking off the least amount of material.
3. Use high strength steel only where it's needed.
4. Use material types and sizes normally carried in stock.
5. Use standard bar stock instead of flame-cut plate.

Processing costs are as important as material costs. Experienced weldment designers know that wherever a weld shows on a drawing, someone must make it. The joint must be accessible to the operator and his equipment.

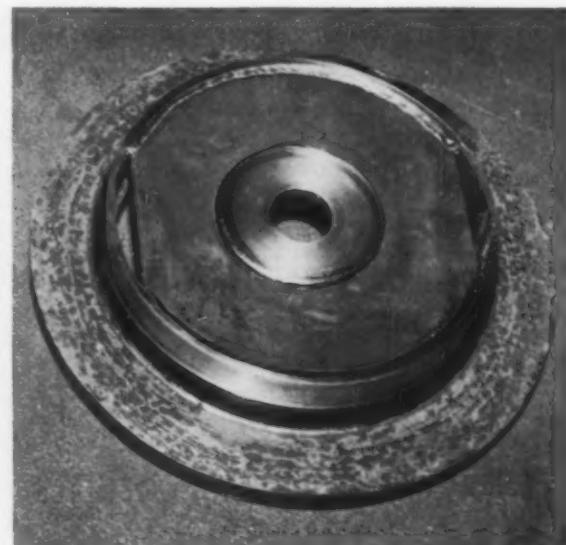
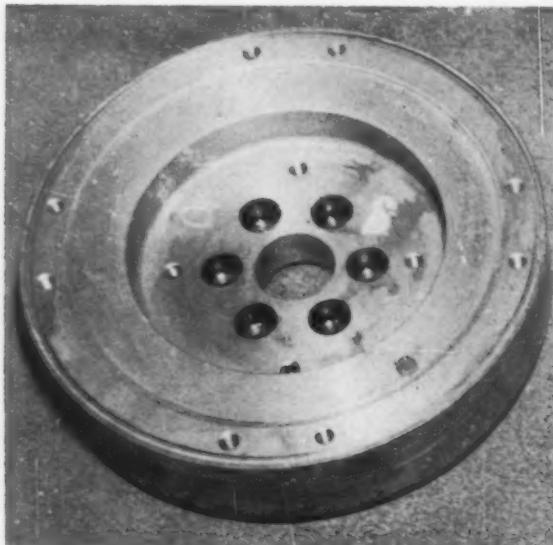
**Not Too Much** — Economical welded design requires a minimum of welding. If possible, corners should be formed rather than cut and welded. Welds should be put

## Redesign Brings Many Benefits



■ Switching the design of its automatic nailing machines to welded steel construction (right) brought the Auto-Soler Co., Atlanta, Ga., many benefits. They included:

1. A 38-pct reduction in direct labor material cost for the base components.
2. A weight drop from 277 lb to 248 lb for the model shown.
3. Improved, modernized appearance.
4. Simplified manufacture, assembly and maintenance of the motor drive unit. The welded base is roomier, makes components more accessible.
5. Simplified crating for shipment because of new, perpendicular design.
6. More efficient material handling in manufacturing, plus a lighter burden on overloaded milling machines.



## Sturdy, Welded Flywheel Costs Less

■ **All-welded**, 15½-in. diam steel flywheel at the right of the accompanying photos is considered better than the former design at the left. One reason: its high inertia-to-weight ratio, gained by concentrating steel bulk near the periphery. Another reason: a 35 pct saving in overall fabricating and machining cost with the welded wheel.

The three elements of the welded flywheel are a flat circular ring (outer coupling), a rim, and a plate (inner coupling). The ring was formed from 1-in. stock in a 3-station progressive die. The rim was roll-formed from 2-in. wide,  $\frac{3}{8}$ -in. thick stock. The plate is a  $\frac{3}{8}$ -in. thick steel section, circular except for two 3½-in. chords.

Welding was done by a combination of manual and submerged arc techniques, using a revolving fixture. After welding, the flywheel was machined on an automatic turret lathe. Holes (not shown) were later drilled and tapped in a pattern corresponding to that shown in the former design.

in the smallest cross section. Above all, no more weld metal should be specified than is needed to do the job; stresses at many joints are relatively small and need only small or intermittent welds.

The use of subassemblies may also lower the processing cost of some weldments. For example, fixtures for small parts not only cost less, but often give a welder better access to a joint. Furthermore, premachining subassemblies on small machine tools is less expensive than machining an entire part on a large machine. Subassemblies also help maintain dimensional stability.

**Build Up Bosses**—On some jobs, build-up beads also cut machining

time. To make small bosses or flanges, it may be quicker to machine them out of build-up bead deposits than to machine surface metal away to leave a boss or flange.

The ease with which weldment designs can be changed is another important factor. Machines are rarely perfect in the original design form. Altering a welded part to improve its strength or rigidity, or to reduce material or processing costs, can be done quickly and inexpensively. Often it involves little more than changing a drawing.

Many firms also appreciate the fact that welded parts give them better control over the entire manufacture of their products. There's

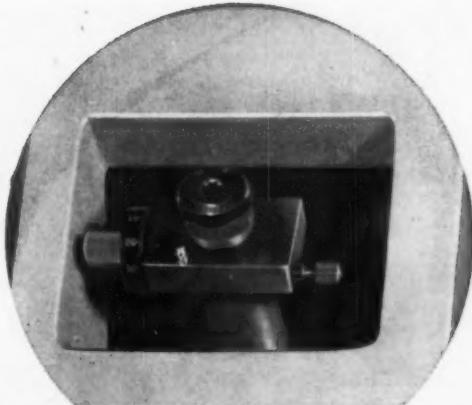
more freedom in scheduling production.

**Control of Quality**—With the uniformly high quality of rolled mild steel, machining operations proceed with confidence that the material is sound.

Weldments solve vibration problems. Since the natural or resonant frequency of a part depends primarily on its mass and rigidity, welded steel designs can be made light—and at the same time rigid—to achieve higher resonant frequency and broader speed range.

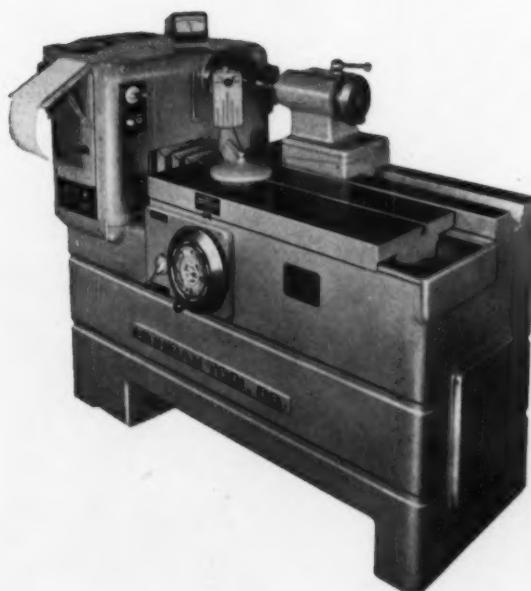
Here again it's easy to correct a vibration problem after the machine is made and in operation. Welding ribs or other stiffeners will usually solve the problem.

A 50x microscope with graduated eyepiece (image appears right side up and unreversed) provides the precision reference against which the sine-bar plate (controlling table movement) is located. No special operating skill is required.



# Now— an EASY way to check gear lead

**Michigan's new Precision Lead-Measuring Instrument uses built-in optical system, recording device to simplify setup, assure accuracy**



Bulletin 1218A details the unit.  
Send for it.

Cuts your set-up time 25 to 50% . . . calculations are virtually eliminated . . . checks leads from zero to infinity to tenths on external and internal helical and spur gears. Also checks herringbones and worms. Instead of gage blocks, micrometers, verniers, etc., you merely line up cross-hairs through a direct-reading, built-in optical system. The sine-bar controlled instrument is manually operated . . . exact-angle locking is positive. Now, you're checking gear leads—fast, accurately and economically. Other 1218A features: an integral data recorder for permanent reference; an electronic gaging head; capacity to 18-inches gear diameter; and Michigan Tool construction.



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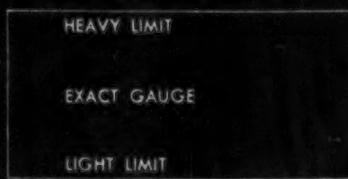
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# Setup Recovers Paint Losses

**Some 150-million-gal of paint a year flow through metal finishers' lines.**

**Consider the impact of a system that can reduce cost of paint used up to 50 pct.**

■ Dirty metal parts enter a new finishing system and exit clean, painted, dry and ready to ship. The process cleans and paints items quickly, economically and safely.

Key to the unit's success is the paint and thinner used. Recently developed by E. I. du Pont de Nemours & Co., Wilmington, Del., the entire finishing setup requires relatively little floor space. Its com-

pactness means reduced utility and labor needs too. At the same time it virtually eliminates fire hazards.

**Recovers Materials**—Major savings result from effective use and re-use of finishing materials. Du Pont figures some 50 pct of paint used in some processes is wasted. This system limits paint consumption to that actually applied to parts.

Constantly, it recovers paint thinner for re-use in degreasing other parts. The same solvent—nonflammable trichlorethylene—serves both vapor degreasing and paint thinner.

**One Unit Does All**—In a single conveyorized machine, parts move through two zones. Both are directly connected and continually blanketed with trichlorethylene vapor. The first zone cleans; the second applies and levels paint.

When paint is air drying, parts leave the setup dry and ready for shipment, since evaporation of the thinner occurs instantly as the part leaves the machine throat.

When a baking paint is used, parts proceed immediately to the baking operation. In some instances, a second coat can go on prior to baking the primer. This means baking two coats together.

**Paints Are About Same**—Du Pont tests show trichlorethylene-thinned paints have properties similar to those of most conventional paints. In general, any paint ingredient which is soluble in trichlorethylene, such as certain alkyd resins, epoxy esters, acrylic resins, asphaltic materials, chlorinated rubbers, etc., can be used in compounding such paints. Paint can be pigmented, and may be decorative as well as protective in nature.

Present machinery is for automated production use. It can adapt

easily to other type operations, though, including dip painting instead of flow coating.

## Welding

**Mobile welding units speed from one job to another**

Crucible Steel Co. uses tractors with specially rigged welding equipment to reduce maintenance costs throughout its Midland, Pa., plant. The tractors carry oxy-acetylene equipment on the front and a belt-driven 300-amp Lincoln Electric welding generator on the rear. A cab protects the driver from outdoor weather and accidentally falling objects when in the mill.

Designed by Crucible and built by a local tractor and welding equipment dealer, the unit saves time and equipment.

**The Old Way**—Previously, welding machines were trucked to the job site. Here motor inspectors hooked them up to power lines. Sometimes it was necessary to run long power lines to the job site. Thus the cost of an otherwise minor repair job became very high.

Now, one of Crucible's four portable units moves right to the job site under its own power. Using the power take-off shaft of the tractor to drive the welder, it's immediately ready to go to work.

**Trucks Really Mobile** — Their

## Want More Data?

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portability and quick setup time make the tractor-welders especially useful on emergency breakdowns. They can literally be on the job in less time than it used to take to get the electric driven welders disconnected from their previous job. In mill maintenance, they can be scheduled for many jobs in several locations in one day.

They can be relied on to complete the work because there are no unexpected delays while the welder waits for electricians or truck drivers. The tractor-welder goes almost everywhere. It can even be picked up by a crane and deposited on a raised operating floor, such as an open hearth. Consequently, shorter cable lengths are used and both cable and welding machine last longer.

## Controls

### Closed-circuit TV aids rolling mill operators

Two teams of operators guiding roughing and rolling mill work at Dominion Foundries & Steel Ltd., Hamilton, Ont., use a new closed-circuit television setup. Operating teams maintain contact by intercom-phone, whistles, signal lights, and now closed-circuit TV.



Using a monitor, these operators view setups 700-ft away.

The TV supplements the intercom. It gives the chief operator of the roughing mill a detailed view of what's happening at the "reversing" mill more than 700 ft away.

Glancing at his receiver, he can

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No over-finishing . . . no under-finishing with the Brush Surfindicator. Weighing only 15 lbs. and ready to be plugged into any 115 volt outlet, it provides on-the-job instant surface measurement. Controlled finish is now practical—inexpensive—and extremely profitable.

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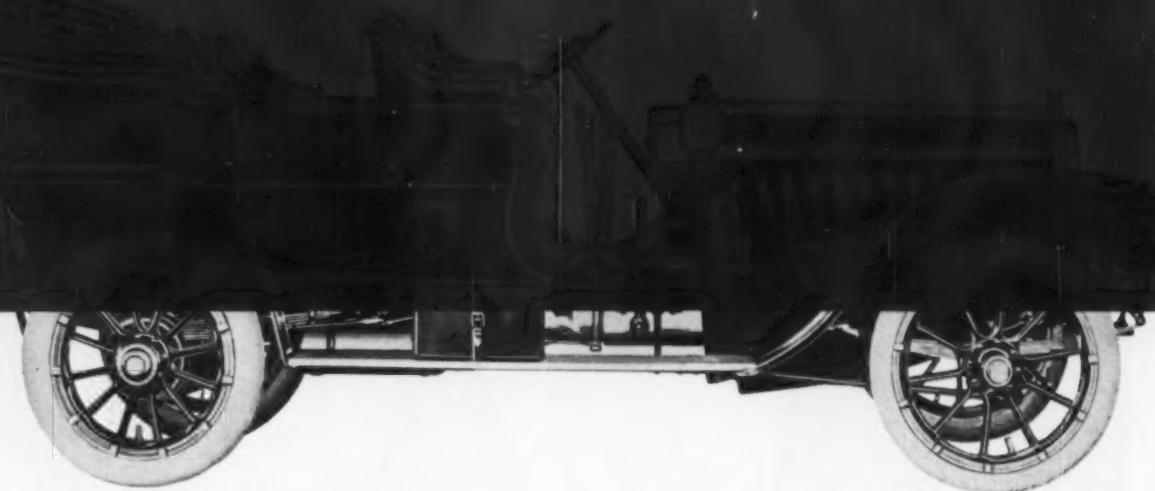
**brush** INSTRUMENTS

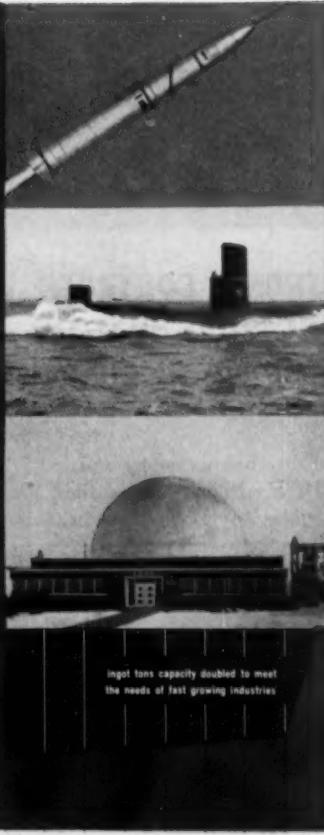
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Since that day, startling discoveries in the *Carpenter* laboratories read like a history of American steelmaking. New steel formulations, quality controls . . . even new steel terminology originated by *Carpenter*, are now standards in steel mills throughout the country.

With this leadership in pioneering and production of the world's finest steels—goes the responsibility of meeting the constantly growing demands of the atomic age—more stainless, more tool steels, more special-purpose alloys. For a company whose history was based on quality rather than quantity, this was quite a challenge.

To meet it, *Carpenter* has doubled its ingot tonnage capacity within the past year, through the acquisition of steelmaking facilities in Bridgeport, Conn. New furnaces, mills and finishers—all completely equipped with precise *Carpenter* quality controls—began operation.

Capacity—mass production of specialty steels for critical applications—is an established fact.

In the years ahead, *Carpenter* will continue to lead the way and grow apace of industry's ever-increasing demands for the world's finest specialty steels.

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## TECHNICAL BRIEFS

read a gage at the reversing mill; this lets him accurately adjust table and roller speed so the billet will be ready at just the right moment.

A second television monitor and camera control unit, located in a small office near the second mill, are used for testing and alignment purposes; also as standby.

The television system is a product of General Precision Laboratory, Inc., Pleasantville, N. Y.

## Handling

### Elevator truck speeds multi-level handling

Empire Steel Castings Co., Reading, Pa., uses this lift truck to speed multi-level handling. The lift truck has 48-in. forks. A special fork adaptor permits lowering of loads 84 in. below floor level into a quench tank.

Over-all lowered height is less than 8 ft. For added safety and comfort, the 6100-lb capacity lift



Truck lowers load 84 in. below floor level into quench tank.

truck is also equipped with an overhead guard, plus a transparent heat shield and drive tire heat shields.

According to truck's manufacturer, the "elevator" principle adapts to a variety of special multi-level production or storage problems.

Towmotor Corp. makes the truck.

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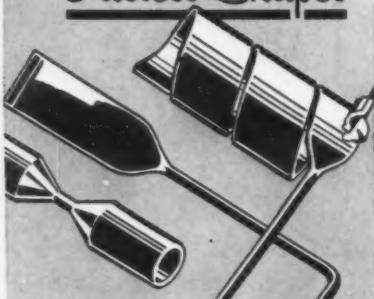
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**TUBE METHODS INC.**

METALLURGISTS • ENGINEERS • MANUFACTURERS

BRIDGEPORT (Montgomery County), PA.

## FREE TECHNICAL LITERATURE

# New Catalogues And Bulletins

**Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 93.**

secure. Safety gates come on hooks sizes, 13, 14, 15, 16, 16A, 17 and 17A. (E. D. Bullard Co.)

For free copy circle No. 5 on postcard, p. 93

### Twist Drills

Humorously illustrated, "refreshing course" literature on good drilling practice shows how better drilling precision and economy is achieved with spiral point drills. (Cincinnati Lathe and Tool Co.)

For free copy circle No. 6 on postcard, p. 93

### Motor Repair

An electric motor producer's new 6-page bulletin lists authorized service stations. (Lima Electric Motor Co., Inc.)

For free copy circle No. 1 on postcard, p. 93

### Steel Strapping

Steel strapping and tools for applying it are covered in a catalog. (Stanley Steel Strapping Div.)

For free copy circle No. 2 on postcard, p. 93

### Miniature Switch

A miniature selector switch covered in two bulletins weighs just 3½ oz. (G. H. Leland, Inc.)

For free copy circle No. 3 on postcard, p. 93

### Air Moving

A 16-page brochure describes special air-moving units for original equipment manufacturers. (American Blower Corp.)

For free copy circle No. 4 on postcard, p. 93

### Hoist Hooks

A new safety locking mechanism for large hoist hooks is presented in an 8-page booklet. This mechanism locks a safety gate in place over the hook's tip. It gives great strength to the gate. The attachment keeps the gate closed and the load

### Mold Metal

A 4-page bulletin describes Meehanite permanent molds for producing metals, glass, plastics or rubber. (For free copy write on company letterhead to Meehanite Metal Corp., 714 North Ave., New Rochelle, N. Y.)

### Heating Oil

A handy heating oil guide consists of two pages of how to select immersion heaters for heating oil and thermostats and controls for regulating oil temperatures. (General Electric Co.)

For free copy circle No. 7 on postcard, p. 93

### Adhesive Tape

Briefly describing tapes for extreme temperature uses, a folder covers pressure-sensitive and self-adhering Teflon, fiberglass and silicone rubber material. Tapes serve —100 to +500°F electrical and mechanical applications. Also mentioned: silicone rubber sheets, sponge sheets, silicone rubber coated

fabrics—all for —120°F to 500°F gasket, pad, cushion and diaphragm jobs—silicone rubber cements, conductive gasketing. (Connecticut Hard Rubber Co.)

For free copy circle No. 8 on postcard, p. 93

## Control Systems

Six illustrated data sheets play-up new control and communication systems. Bulletins cover: remote control for natural gas systems, control for water systems, mine power control by fan operation, loudspeaking telephones, and "trolley" phones for industry. (Femco, Inc.)

For free copy circle No. 9 on postcard, p. 93

## Metal Parts

Designers and makers of component metal parts may find useful a catalog issued by firm which specializes in springs, wire forms, light metal stampings, screw machine products, assemblies and sub-assemblies. No standard catalogued items are made. (Stanley-Humason, Inc.)

For free copy circle No. 10 on postcard, p. 93

## Cutting Tools

Specialty high-speed steel and carbide cutting tools are reviewed in a 6-page catalog. These include: high-speed steel combination drill countersinks, stop countersinks, rivet shavers, back spotfacers and countersinks. (Craig Tools, Inc.)

For free copy circle No. 11 on postcard, p. 93

## Solenoid Valves

Literature describes 10,000-psi solenoid valves. These standard stock shutoff and four-way valves come in  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$ -in. port sizes. They rate at 10,000-psi liquid or gas. All withstand 15,000-psi surges. Burst pressure: 30,000 psi. (Barksdale Valves.)

For free copy circle No. 12 on postcard, p. 93

## Foundry Machines

Rollover draw and jolt rollover draw machines are featured in an 8-page brochure. With a no-pit design, these foundry units eliminate many mold or core handling delays. The



## SHOW STOPPER



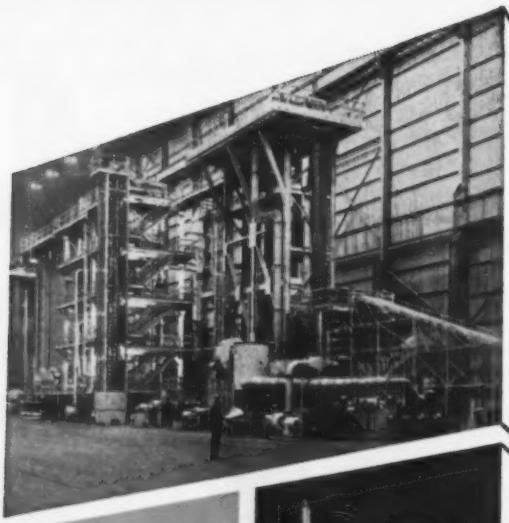
It's the new Torrington Verti-Slide, the first major innovation in the field of 4-SLIDE equipment in 50 years!

This machine was designed to meet a growing need for greater productivity and profitability in the cost-critical area of wire and strip forming.

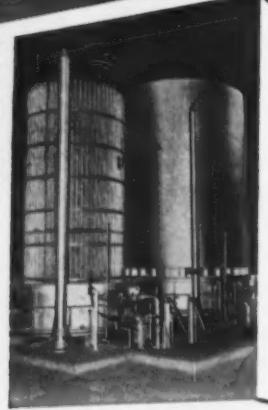
Seldom before has a new machine created such immediate and widespread interest. We urge you to get the full story. Write or call today.

## THE TORRINGTON MANUFACTURING COMPANY

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VERTICAL STRIP ANNEALER

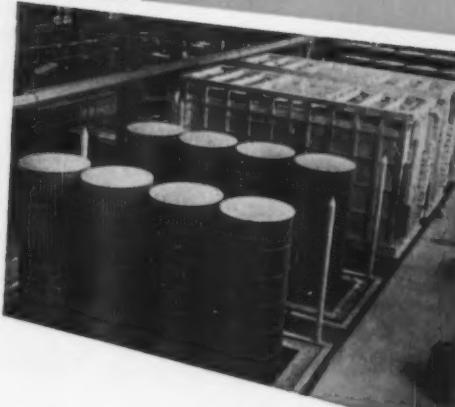


SINGLE-STAND ANNEALERS

CONTINUOUS STRIP GALVANIZER

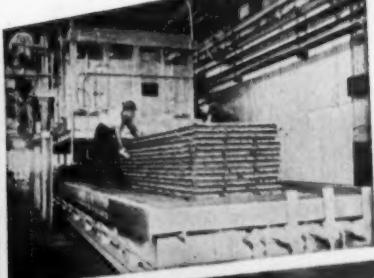


MULTIPLE-STAND ANNEALERS

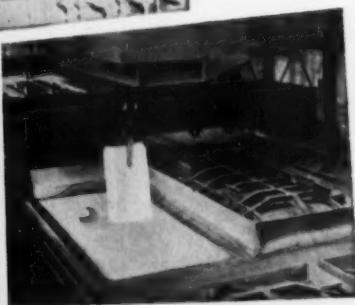


# foundation for steel mill profits

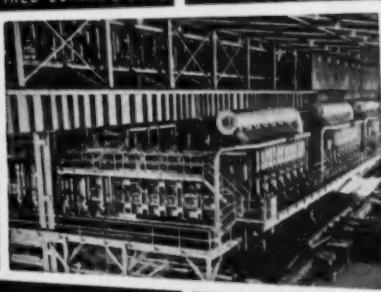
CARBOTTOM COVER FURNACE



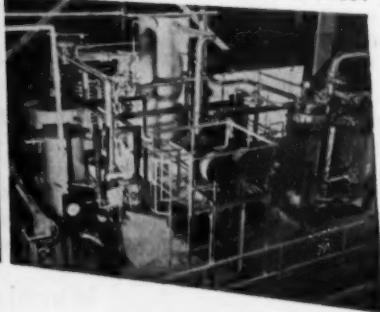
ONE WAY FIRED SOAKING PITS



WORLD'S LARGEST SLAB HEATER



HNX® GAS GENERATOR



You put a solid foundation under your profits whenever you specify Surface equipment. Whatever type it may be, you know it is supported by many interlocked blocks of know-how in heating and handling steel.

The technical skills which Surface has developed in building soaking pits will benefit the man who buys Surface annealing covers. In the same way, Surface concepts of slab heating contribute to high-speed stress relieving . . . carbon restoration to strip annealing . . . controlled atmospheres to wire patenting.

Because of this broad and deep foundation of experience, Surface can improve any single process in the context of a complete sequence of operations. This is to the customer's profit, as many companies will confirm.

Surface Combustion Corporation, 2402 Dorr St., Toledo 1, Ohio. In Canada: Surface Industrial Furnaces, Ltd., Toronto, Ontario.

*wherever heat is used in industry*

ASSOCIATED COMPANIES: British Furnaces, Ltd., Chesterfield • Stein & Atkinson, Ltd., London • Stein & Rousbaix, Paris • S. A. Belge, Stein & Rousbaix, Bressoux, Liege • S. A. Forni Stein, Genoa • Chugai Ro Kogyo Kaisha, Ltd., Osaka



## TWIN-WELD HOSE CAN'T KINK OR CURL

There's no wrestling with snarled hose lines when this Hewitt-Robins welding hose is on the job. It can't kink or curl because it's molded in *straight* sections by the exclusive H-R platen press process. Both oxygen and acetylene lines in a single integrated unit, yet each clearly color marked, means easier handling and moving, increased safety, longer wear, and time and money saved.

The patented construction of Twin-Weld hose increases flexibility, gives life-time adhesion between the two lines, eliminates coil set, and prevents any chance of leaks or ruptures between tube and cover. In-process inspection during all stages of manufacture results in the highest quality welding hose on today's market. To find out how H-R products and services can help you, consult your classified telephone directory for the nearest H-R representative, or contact Hewitt-Robins, Stamford, Connecticut.



# HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES  
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

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Amsterdam, Holland • Johannesburg, South Africa • London, England • Montreal, Canada • Paris, France

## FREE LITERATURE

all-hydraulic machines speed operation, provide efficient handling and great precision. Capacities range from 1000 to 15,000 lb. (Beardsley & Piper Div., Pettibone Mulliken Corp.)

For free copy circle No. 13 on postcard, p. 93

## Aluminum Conduit

"Aluminum rigid conduit can now be purchased and installed at a cost comparable to, or less than, that of conventional conduit." So opens an aluminum firm's 12-page booklet. It outlines advantages of the conduit. (Aluminum Co. of America.)

For free copy circle No. 14 on postcard, p. 93

## Building Copper

Builders may find helpful a 24-page booklet on cutting home building costs with copper for plumbing, heating and air conditioning systems. (Chase Brass & Copper Co.)

For free copy circle No. 15 on postcard, p. 93

## Vapor Absorbers

How hydrocarbon vapor absorbers provide clean, dry air and gas for steel plants, metal fabricators, instrument makers, and users of pneumatic instruments and pneumatic tools, is told in a bulletin. It reviews 14 standard sizes. These protect air and gas systems and pneumatically-operated instruments and mechanisms from effects of oil vapor, free oil, water-oil emulsions and dirt. (Selas Corp. of America)

For free copy circle No. 16 on postcard, p. 93

## Magnesium

Use of magnesium in electronics is analyzed in a 20-page booklet. (Dow Chemical Co.)

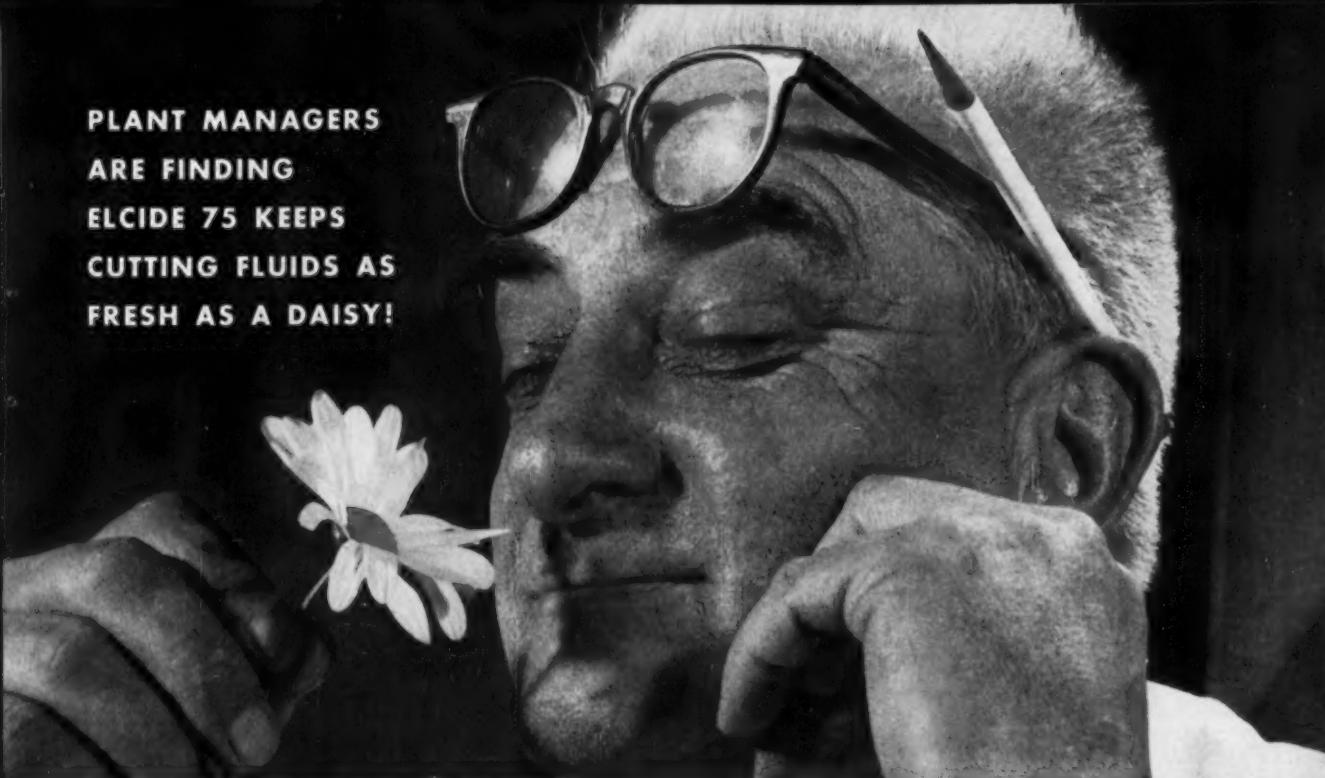
For free copy circle No. 17 on postcard, p. 93

## Machining Movies

Of 147 motion picture films on machine tools and machining listed in a new 26-page booklet, 84 are in color. All films are available without charge. (National Machine Tool Builders' Assn.)

For free copy circle No. 18 on postcard, p. 93

PLANT MANAGERS  
ARE FINDING  
ELCIDE 75 KEEPS  
CUTTING FLUIDS AS  
FRESH AS A DAISY!



# ELCIDE 75™ controls bacteria in soluble oil emulsions

*...increases plant efficiency*

**Elcide 75** extends the life of standard duty soluble oil emulsions. This longer emulsion life increases plant production and lowers operating costs.

**Elcide 75** is a new bacterial inhibitor that controls a wider range of the harmful bacteria that cause emulsion breakdown, corrosion, and odor. This positive control means it is now possible to extend the life of standard duty emulsions up to 5½ times longer than ever before. This longer emulsion life decreases the down time previously spent for recharging, thereby increasing production and labor efficiency. Total soluble oil requirements are less, and waste-oil disposal becomes much less of a problem and expense.

**Elcide 75** is safe to employees and machinery. Shop tests show it is nontoxic and safe, and it controls the bacteria that may cause acidic corrosion of machinery and staining of products.

**Elcide 75** is more effective than commonly used single inhibitors because it is a combination of anti-bacterial agents, and includes a powerful new compound related to one of the safest and most effective bacterial inhibitors used in medical surgery today.

**Bacterial plate counts prove** the killing power of Elcide 75. The light areas shown in the photograph are harmful bacterial colonies that have built up in a normal untreated emulsion in 12 weeks. Notice the emulsion treated with Elcide 75 has been kept clean and clear.



**Elcide 75 specifications:** Active Ingredients—Sodium Ethylmercuri Thiosalicylate (Thimerosal) and Sodium o-phenylphenate. Price per gallon—1 gallon polyethylene, \$8.50, 5 gallon polyethylene, \$8.00, 55 gallon stainless steel, \$6.50. Sold only through selected distributors. For more information or to place your order, phone or write:

## ELCIDE 75™

Lilly

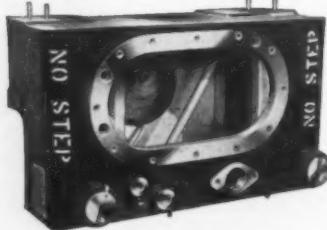
Lilly's brand of bacterial inhibitor for cutting fluids

ELI LILLY AND COMPANY, AGRICULTURAL AND INDUSTRIAL PRODUCTS DIVISION, INDIANAPOLIS 6, INDIANA. TELEPHONE: MELROSE 6-2211



## Looking for a Fabricating Source...

*of welded precision assemblies?*



As a major producer of circular parts and welded components for the aircraft industry, Amweld® possesses special knowledge and techniques for forming, welding, and machining of assemblies. Fabricating of aluminum, titanium, stainless, and heat-resistant alloys is a major part of this work. Experienced metallurgical and engineering staffs, plus a skilled work force, make up this team of fabricating specialists which is available to you on a subcontracting or experimental work basis.

If you would like to obtain complete information on the capabilities of American Welding and how we can be of assistance to you—phone or write today. Our local representative will be happy to call and discuss your requirements.

**THE AMERICAN WELDING & MANUFACTURING CO.**  
120 Dietz Road • Warren, Ohio



## AMERICAN WELDING

**Write for complete information.**  
NEW 20-page catalog of Amweld Rings, Bands,  
and Welded Assemblies.  
NEW booklet entitled, "HOW AMWELD FLASH  
BUTT-WELDED RINGS ARE PRODUCED."

## FREE LITERATURE

Continued

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

### Power Strap Feed

Feeding steel strap around large packages at 4½ fpm, a new unit continues feeding as long as a hand lever is depressed. Another model works via a foot lever. A third feeds until a limit switch halts it. A booklet gives details. (Acme Steel Co.)

For free copy circle No. 19 on postcard

### Wire-rope Conveyor

Advantages of a new idea in materials handling are discussed in a bulletin. It's a wire rope type belt conveyor. (Jeffrey Mfg. Co.)

For free copy circle No. 20 on postcard

### Annunciator

Completely integrated space-saving annunciators feature low installation costs, a flashing sequence alarm and a no-drain-circuit. For monitoring complex automatic equipment, these annunciators are described in a new bulletin. (Panellit, Inc.)

For free copy circle No. 21 on postcard

### Marking System

How hundreds of cartons can be addressed in minutes is explained in a booklet. (Weber Marking Systems.)

For free copy circle No. 22 on postcard

### Tool Steel

An expanded list of tool steel stock includes: (1) Two high-carbon, high-chrome, oil hardening tool steels previously unlisted; (2) Information on HSS tool bits, hardened and finish ground; (3) tool steels SAE O1 (oil hardening), SAE H 12, and SAE H 13 hot

work steels, in hollow bars, ground flat stock and drill rods, and (4) A brand name chart of 13 tool steel producers, temperature conversion chart, tables of wire and sheet metal gages. (Uddeholm Co. of America.)

For free copy circle No. 23 on postcard

### Cooling Coil

Cooling coils detailed in a bulletin are direct expansion coils, and both standard and cleanable tube water coils. (American Air Filter Co.)

For free copy circle No. 24 on postcard

### Forging Dies

Cast forging dies and auxiliaries are described in a 4-page leaflet. Covered are: cogging hammer dies, cogging press dies, sow blocks and anvil bases. Helpful hints appear on selecting proper surface hardness and alloys. (Mackintosh-Hemphill Div., E. W. Bliss Co.)

For free copy circle No. 25 on postcard

### Machinery

Used and rebuilt machinery is listed in a 64-page catalog. It includes machine tools and fabricating equipment of virtually all types and sizes. (Interstate Machinery Co., Inc.)

For free copy circle No. 26 on postcard

### Cryogenics

Current information on cryogenics and related subjects appears in a company publication. (Arthur D. Little, Inc.)

For free copy circle No. 27 on postcard

### Hydraulic Hose

Containing 36 pages on medium to low pressure hydraulic hose and tube assemblies, a brochure has accurate dimensional drawings. Complete tables list available sizes. (Eastman Mfg. Co.)

For free copy circle No. 28 on postcard

### Corrosion Inhibitors

A technical bulletin gives data on three grades of naphthenic acids. These acids are used in making all types of emulsions and corrosion

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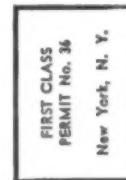
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THE IRON AGE  
Post Office Box 77  
Village Station  
NEW YORK 14, N.Y.

## FREE LITERATURE

inhibitors. They are used in foundries to bind resin-sand mixtures, to make ore-flotation agents and slushing compound inhibitors. (Sun Oil Co.)

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No postage necessary if mailed in the United States

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NEW YORK 14, N. Y.

FIRST CLASS  
PERMIT NO. 36  
New York, N. Y.

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in a single reduction drive of six sizes, with nominal ratios of 5 to 1 and capacities to 50 hp. Also reviewed are double reduction drives in seven sizes. These have nominal ratios of 15 to 1 and up to 40 hp. (Link-Belt Co.)

For free copy circle No. 33 on postcard

## Industrial Television

Automatic, built-in light control lets a new industrial television system compensate for light-level variations to 1000:1. In addition, a white clipper circuit minimizes effects of extremely bright objects in the viewing field. A bulletin shows how the system can aid metalworking firms. (Kin Tel Div., Chou Electronics, Inc.)

For free copy circle No. 34 on postcard

## Storage Racks

Adjustable storage racks for industrial plants and storage areas are detailed in a brochure. Actual in-plant photos show a wide variety of uses in storing: aluminum, brass, steel and copper, diesel engine parts, firebrick, heavy steel dies, small parts, sheet steel, etc. (Palmer-Shile Co.)

For free copy circle No. 35 on postcard

## Coil Splicing

Splicing welding equipment for coil build-up lines are covered in a 4-page bulletin. (E. W. Bliss Co.)

For free copy circle No. 36 on postcard

## Open Motors

Open-type motors announced in a bulletin are "super sealed" to handle jobs once thought only in the realm of enclosed motors. (Allis-Chalmers Mfg. Co.)

For free copy circle No. 37 on postcard

## Turret Lathe

Automatic chucking turret lathes are announced in a catalog. It explains basic machine principles whereby speed, feeds and machine functions can be preselected electrically. Setup time can be cut 50 pct in some cases. (Gisholt Machine Co.)

For free copy circle No. 38 on postcard

## Wire-rope Slings

For the first time, a company's cable-laid safety slings and its rope-laid safety slings are now completely catalogued. It recommends the cable-laid slings where users want a soft sling body with flexibility more important than resistance to abrasion. Rope-laid Slings serve where abrasion resistance is a first consideration. (Macwhyte Wire Rope Co.)

For free copy circle No. 38 on postcard

## Hard Surfacing

A fact file covers hard surfacing. It gives data on 88 types and sizes of hard surfacing electrodes. Complete information for reference files appears on 3 x 5-in. cards. (For free copy write on company letterhead to Metal & Thermit Corp., Rahway, N. J.)

For free copy circle No. 35 on postcard

## Packings

Compression packings in a new line are introduced in a catalog. The line includes both sheet and rod seal types to round out its maker's complete stock of molded hydraulic packings and hydraulic fluids. (E. F. Houghton & Co.)

For free copy circle No. 33 on postcard

## Tracer Machining

A 36-page booklet explains workings of an air-gage tracer contour system for metalworking. It adapts to precision turning, facing and boring. (For free copy write on company letterhead to Monarch Machine Tool Co., Sidney, Ohio.)

For free copy circle No. 37 on postcard

## Speed Reducers

Shaft-mounted speed reducers covered in a 24-page booklet come

# New Production Ideas

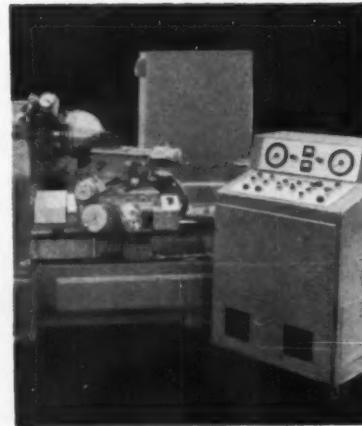
## Equipment, Methods and Services

### Precision Lathe Works In Heat-controlled Area

To assure ultra-close tolerance performance, this contouring lathe is built and tested in a temperature-controlled area. It also must be used in such an area. A chucking type lathe, it performs OD and ID machining of thin wall spherical and related shape workpieces. Diameter range which may be contoured is 5 to 15 in. The spindle sets at a 30° horizontal angle to the bed axis. Runout at the nose is less than 25 millionths. Mounted

on its own cast base, the infinitely variable direct-current drive couples to the spindle via a flexible coupling. This eliminates vibration transmittal from the drive to the bed. There is constant surface cutting speed over a 6 to 1 ratio. Total speed range is 8½ to 1000 rpm. The spindle bearing lubricant is refrigeration cooled to keep the spindle at room temperature. (Monarch Machine Tool Co.)

For more data circle No. 39 on postcard, p. 93



### Setup Lets Operator Over-rule Automation

Though its numerical control unit may tell a machine to do a certain step a certain way, the operator can now over-rule it. Using a new manual feed rate override, he can vary cutter feed rate to his own liking—even though the machine tool is hooked to an automated control. No matter what's programmed on the tape, he can work the cutter as he pleases. This means remaking machines tapes is not needed to provide for reduced tool loading in

critical areas with variables such as cutter quality, material hardness, vibration from fixture or tool or incorrect feed rate programming. Feed rate override may be exercised at any time during the machining cycle without affecting accuracy of the finished part. With this new setup, the operator can reduce feed rate down to 20 pct of the programmed rate. (Bendix Industrial Controls).

For more data circle No. 40 on postcard, p. 93

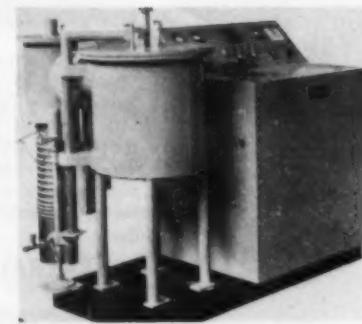


### Vacuum Furnace Sinters, Degasses, Heat-Treats

Operating at temperatures to 2200°C (4000°F), this cold-wall resistance heated vacuum furnace is compact in size. It adequately handles jobs such as: (1) sintering powder metal parts compacted of materials having a very high melting point, such as tantalum; (2) degassing components such as tungsten elements for electronic tubes, which

require equally high temperatures; (3) other heat-treating operations, either in experimental work or small-scale production. Just 5-ft 4-in. long and 4½-ft wide, it has a 20-in. diam x 20-in. deep vacuum retort. Hot zone is 3½ in. diam x 6½-in. deep. (F. J. Stokes Corp.)

For more data circle No. 41 on postcard, p. 93





**ENGINEERING  
REPORTS:**

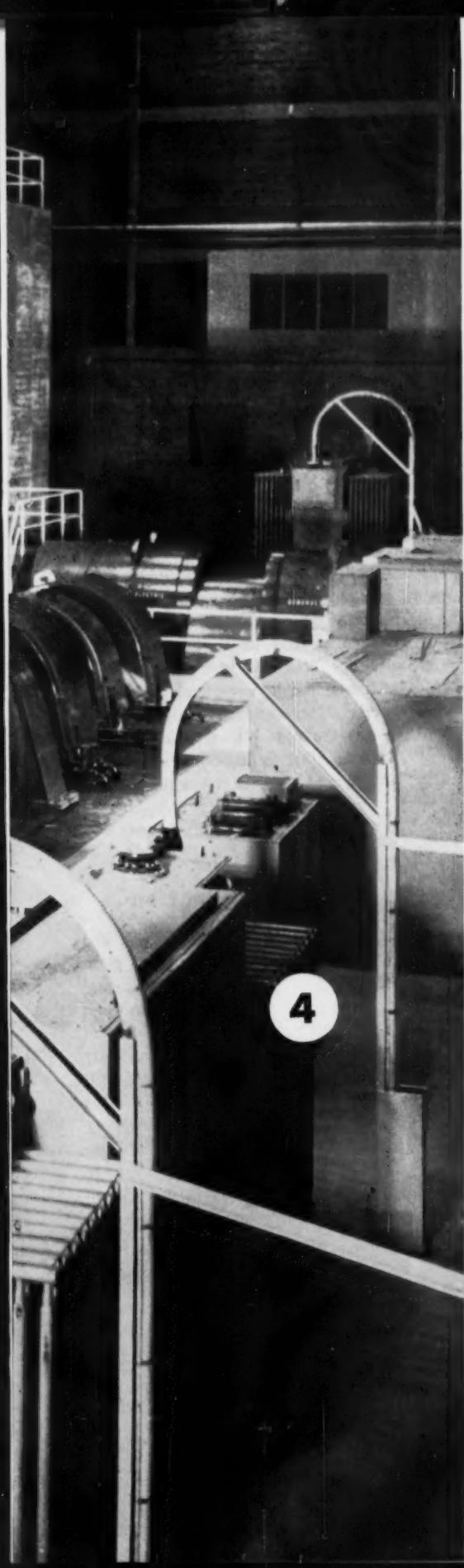
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2

3

Slabbing mill's co-ordinated electrical system power package: ① results in lower costs when drive motors are mounted "TOP-FORWARD" ② affords accurate mill operation from main-drive d-c control equipment and from auxiliary M-G sets, ③ provides dependable d-c power for drive motors from flywheel motor-generator set, ④ gives high efficiency power supply from G-E unit substation.

**GENERAL ELECTRIC**



New General Electric  
Drive System...

# Lowers Installation, Maintenance Costs

A new General Electric DC Drive System for reversing mills incorporates unique features designed to save considerable installation and yearly maintenance expense. With the G-E design, large twin drive motors become easily accessible—this means less maintenance expense. And, with ventilating equipment "built-in", foundation and other installation costs are reduced. Modernization of obsolete mills becomes more economical than ever before.

Now in operation at an Eastern mill, the new drive system resulted from an extensive G-E engineering study into previous construction and maintenance procedures. The new "**TOP-FORWARD**" arrangement, for example, places the top motor nearest the mill, with the rear motor shaft passing under the forward motor. Result: servicing time is reduced. Design of quick-removable motor covers permits faster servicing, with a minimum of effort.

These revolutionary "**TOP-FORWARD**" mill motors with extra value features available now, combine with other electrical system components to give one of the fastest and most accurate drive systems now available to the metal rolling industry.

G.E. is ready to work with you to provide the most advanced quality-engineered electrical equipment for your mill applications. Your nearest General Electric Apparatus Sales Office will give you complete information. Write for GEA-6812, DC Drives for Metal Rolling to General Electric Company, Schenectady 5, N. Y. 639-122

Engineered Electrical Systems for Steel Mills

**GENERAL**   **ELECTRIC**

## NEW EQUIPMENT



### Flat Surface Grinder Uses Abrasive Disks

This double horizontal spindle disk grinder precision grinds flat surfaces. It has rotary carrier fixturing for grinding two parallel sides of valve plates 5.395-in. diam x 0.170-in. thick. The grinder is equipped with a horizontal trough loader for feeding parts into stations of the rotary carrier. An automatic face cut mechanism permits progressive stock removal. The unit has an automatic diamond

dresser; this is automatically actuated after a pre-selected number of parts have been ground. The grinder also features automatic size control and an integral wet grinding system. The abrasive disk grinder is available with 36 or 42-in. diam disks. A variety of work carrying fixtures are obtainable. Models will grind metallic and non-metallic workpieces up to 18-in. diam. (Gardner Machine Co.)

For more data circle No. 44 on postcard, p. 93



### Tongs Handle Stock In Very Tight Places

Automatic mechanical handling tongs in a new series operate in areas where space is too small for lift trucks. The tongs work from mill or S-hooks, depending on capacity. Each features an automatic lock. This opens upon contact with the load without aid of electric power or other mechanical devices. As the tong lowers over the burden: (1) In its "locked-open" position, it

automatically unlocks upon contact; (2) In that position it's free to grip the load securely; (3) The heavier the load, the tighter the grip. When the load is deposited it automatically completes its cycle to the "locked-open" position, ready for the next lift. Capacities range from 1000 to 50,000 lb. Maximum opening is 50 in. (American Forge and Mfg. Co.)

For more data circle No. 45 on postcard, p. 93



### Fast Drying Paint Doesn't Hold Up Production

Fast-drying, a new all-surface enamel is said to considerably reduce-on-the-job painting and maintenance costs. Its 15-minute drying time means that production equipment and work areas can be painted and back in use 15-minutes after the job is done. Non-toxic, it produces a "baked enamel type" finish. It's highly resistant to acid, alkali, alcohol, gasoline and boiling water. Field and lab tests show it has high abrasion resis-

tance. This qualifies it for floor and deck use. Machines and plant equipment painted with it during a lunch hour are ready to use when operators return. Areas painted at the end of one labor shift are ready for occupancy when the next shift reports. Busy loading platforms can be painted, delaying shipping and receiving for only a short period. (Consolidated Chemical & Paint Mfg. Co., Inc.)

For more data circle No. 46 on postcard, p. 93



### Drill Grinder Extends Point Design's Field

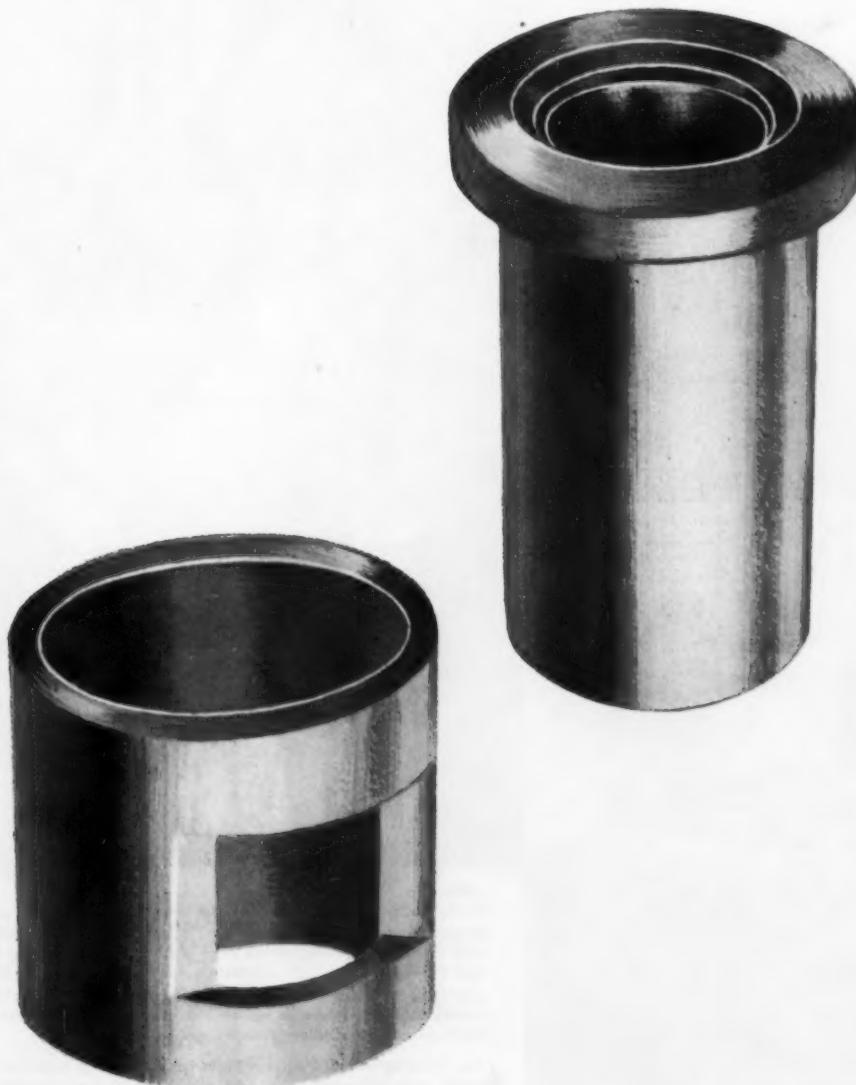
For heavy-duty jobs, this drill pointer extends the drill size range of the "Oliver point." Until now, this point has been available only on a drill grinder with a 3-in. diam maximum capacity. The exclusive

Oliver drill grinding technique provides an intensive clearance angle on the point as the drill web is approached. Capacity: 3/32 in. to 1/2 in. (Oliver Instrument Co.)

For more data circle No. 47 on postcard, p. 93

**5 Positive ways** Asarcon® continuous-cast bearing bronze saves you money: 1) Exact lengths. Order Asarcon 773 (SAE 660) in exact lengths you need, up to 105". No short-end scrap as from ordinary cast bars. 2) Close-to-size. Asarcon 773 gives you only 1/32" to 3/32" to machine off, in diameters from 1/2" to 9". 3) Less machining. Less stock to remove saves machining time and cost. 4) No blow-holes, pits, or shrinks. No sand to dull tools. No hard or soft spots. No loss of machining time or parts thrown away because of metal defects. 5) Less down-time. The better, more uniform properties of Asarcon 773 assure longer life of important machine parts, and fewer breakdowns. Asarcon 773 bearing bronze is carried in 260 stock sizes, solids and tubes. See your local distributor or write Continuous-Cast Products Department, American Smelting and Refining Company, Barber, N. J.; on the West Coast, Kingwell Bros., Ltd., 457 Minna St., San Francisco; in Canada, Federated Metals Canada, Ltd., Montreal and Toronto.

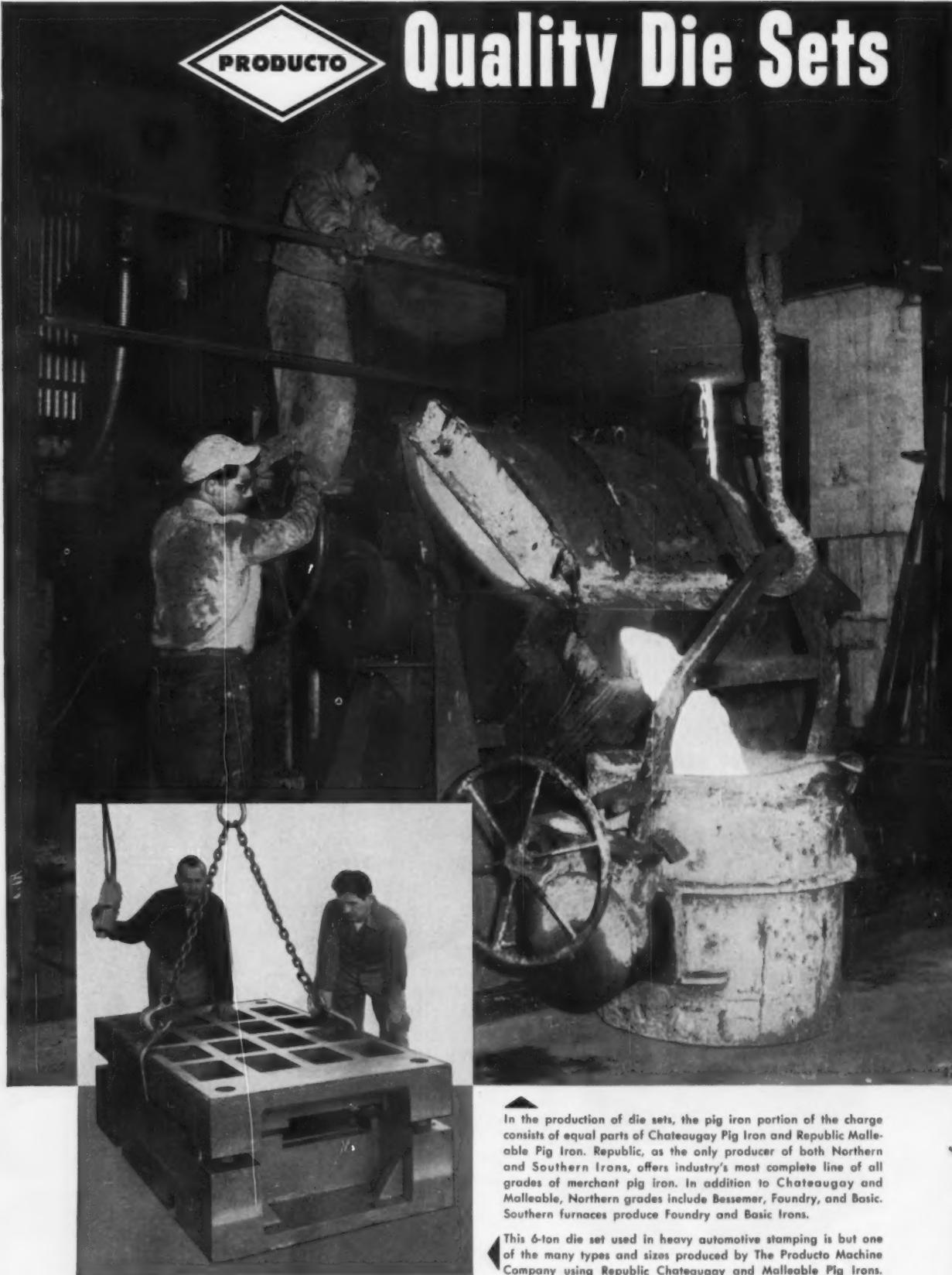
## **CONTINUOUS-CAST DEPARTMENT OF**



**ASARCON**  
AMERICAN SMELTING AND REFINING COMPANY

PRODUCTO

# Quality Die Sets



In the production of die sets, the pig iron portion of the charge consists of equal parts of Chateaugay Pig Iron and Republic Malleable Pig Iron. Republic, as the only producer of both Northern and Southern Irons, offers industry's most complete line of all grades of merchant pig iron. In addition to Chateaugay and Malleable, Northern grades include Bessemer, Foundry, and Basic. Southern furnaces produce Foundry and Basic Irons.

This 6-ton die set used in heavy automotive stamping is but one of the many types and sizes produced by The Producto Machine Company using Republic Chateaugay and Malleable Pig Irons.

# Start with Republic Pig Irons

The Producto Machine Company, Bridgeport, Connecticut, combines skill and modern foundry equipment with the finest raw materials to produce the highest quality die sets for the metal stamping industry.

Producto casts die set parts in their own foundry, using only raw materials with a definite known analysis, including Republic Pig Irons and ARA rail quality scrap. Republic Chateaugay and Malleable Pig Irons' year-in, year-out uniform chemistry help Producto produce high quality, laboratory-controlled castings. The company has found that there is no better, no more economical means for insuring strong, flaw-free, easy-to-machine castings.

Chateaugay's uniform distribution of chemical

elements produces a dense grain structure which results in economical machining—plus excellent wear-resistance. Loss rate caused by flaws and porosity is held to an absolute minimum.

Other characteristics of Chateaugay are unequalled by any domestic pig iron. Its high carbon and unusually low sulphur, phosphorus, and manganese content make it ideally suited for production of ductile iron castings.

A Republic Pig Iron Metallurgist will give you all the facts on Chateaugay and Malleable Pig Irons for quality castings as well as complete details on other Republic Irons.

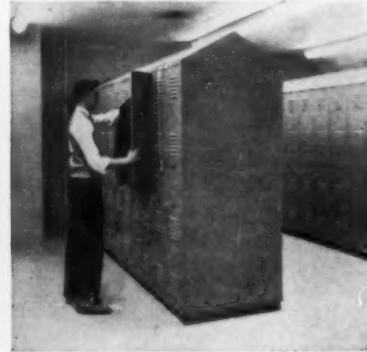
Send the coupon today for prompt, expert metallurgical service, or for more information on Republic's complete line of irons.



**THIS STEEL "HOT" BOX MEETS ALL REQUIREMENTS** for handling hot work in foundries. It is made of Republic High Strength Steel and is designed to withstand plenty of use and abuse. The box is 53" long x 38" wide x 26" deep. Corrugated-steel construction of the sides and bottom assures long service life at lowest per-year-cost. Stacking brackets are securely welded to the top corners of each box permitting tiering to any practical height. 16-inch clearance is provided for easy handling by fork lift truck. Send coupon for catalog on the complete line of Republic Materials Handling Equipment.



**STRENGTH TO WITHSTAND ENORMOUS WEIGHTS**—Republic Wedge-Lock Steel Shelving is specifically designed for high stacking of such heavy items as dies, patterns, castings, etc. Joints actually grow tighter as weight increases. There's no distortion or instability. Result is efficient use of floor space plus easy rearrangement to meet future needs.



**STRONG, STURDY, RIGID** Republic Steel Lockers combine smart styling and design with simple construction for fast, easy installation. Tough, Bonderized steel base guards against underfinish corrosion that causes flaking and peeling. Give employee morale a boost with handsome Republic Industrial Lockers. Write for illustrated booklet on types, prices, specifications.

# REPUBLIC STEEL

*World's Widest Range  
of Standard Steels and  
Steel Products*



**REPUBLIC STEEL CORPORATION**  
DEPT. IA -6485  
1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Have a Pig Iron Metallurgist call.  
 Send more information on:  
 Shelving  
 Materials Handling Equipment

Lockers

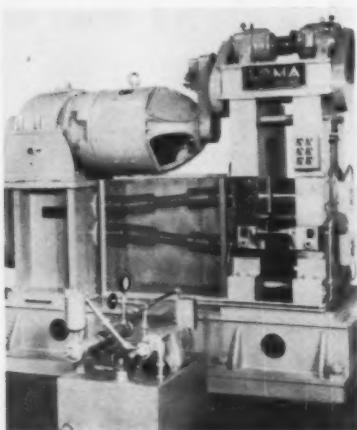
Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## NEW EQUIPMENT



### Heavy-duty Setup Is Two Rolling Mills In One

For production or research rolling of metal strip, this heavy-duty 2-high/4-high unit is two rolling mills in one. Filling high precision needs, the combination mill converts from a conventional vertical strip mill to a horizontal mill. The latter compacts metal powders into sheet and strip. The machine uses extra large capacity mill housings, roll journals, universal spindles and drive transmission. Its heavy-duty design lets the mill take reductions

of more than 50 pct per pass while maintaining tolerances to 5 pct of thickness. Changeover from the 8½ x 8-in./2-high to the 2½ & 8½ x 8-in./4-high setup requires just 30 minutes. The 2-high arrangement handles either hot or cold breakdown rolling of plate and sheet; grooved rolls are also available to process rounds, squares and other shapes. The 4-high setup cold-finish rolls strip thin as 0.0002 in. (Loma Machine Mfg. Co.)

For more data circle No. 48 on postcard, p. 93



### System Supplies Low-Dewpoint Compressed Air

Clean, low-dewpoint compressed air is now available from a single unit. This compressed air receiver tank with a built-in air dryer can be run from a large central station (or small scattered units may be used) to deliver moisture-free air necessary in various ferrous metal processes. The combined air dryer and receiver purifies and dries air to zero-dewpoint quality. Then, it stores and delivers this air clean and free of moisture. This elimi-

nates fouling, corroding and freezing of instruments, air stools, controls, circuits, finishes, chemicals, etc. This compact, single-vessel design requires relatively little space, installation, maintenance, inspection and insurance. It runs without heat, regeneration or regulation. There's no volume loss and less than 1-pct pressure drop. The unit comes in capacities up to 8000 scfm and 6000 psig. (Van Products, Inc.)

For more data circle No. 49 on postcard, p. 93



### Air Gage Quickly Checks Ball Bearing Races

Quick responding, this highly accurate gage checks preload and end play of ball bearings. Checking both statically and dynamically, the gage determines relative "face flushness" of miniature and instrument size ball bearing races. Measuring back pressure created by restriction of air flow, it checks the position of the inner race relative to the outer race under varying axial loads (preload, and the actual axial displacement of the inner race under load

reversal of a given magnitude (end play). The gage handles bearings from 0.040-in. bore through 1-in. OD to a direct reading of 20-millionths of an inch on the preload scale, and five ten-thousandths of an inch on the end play scale. Heat of the preload gage is a combination of free-floating upper and lower pistons which ride in air bearings without friction. (Pratt & Whitney Co., Inc.)

For more data circle No. 50 on postcard, p. 93

## GOSS and DE LEEUW

MULTIPLE SPINDLE

### CHUCKING MACHINES

Four, Five, Six, Eight Spindles • Work and Tool Rotating Type  
GOSS & DE LEEUW MACHINE CO., KENSINGTON, CONN.

## ZINC

STRIP AND WIRE

ZINC METALIZING WIRE

ZINC ACCURATELY ROLLED

for electric fuse elements

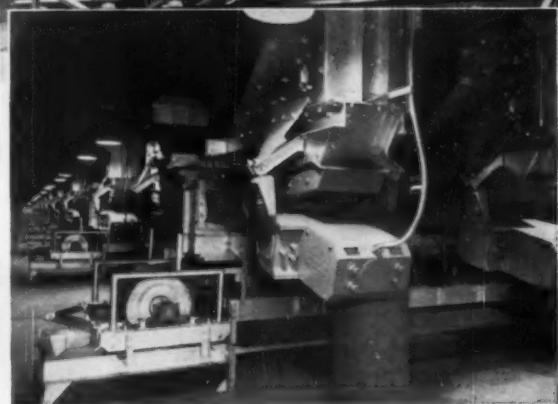
THE PLATT BROS. & CO., WATERBURY 20, CONN.



Jeffrey magnetic separators help raise iron content of pellets to 64%.

Jeffrey vibrating feeders keep ore on the move. ▶

## New Taconite Plant sets 24-hour, year-round pace!



IRON YIELD of the Mesabi Range is being greatly extended by a new plant which can, *every day*, turn about 63,000 long tons of taconite ore into approximately 20,000 tons of pellets bearing up to 64% iron. Efficient, trouble-free Jeffrey equipment is an important part of the vast and highly mechanized operation which makes this processing economically practical.

**Jeffrey Magnetic Separators** — 216 ball mill roughers and finishing separators are used in concentrator operations. After proper settings are made, feed may vary from zero to maximum capacity without further adjustment. Separators furnished in both permanent and electro types.

**Jeffrey Vibrating Feeders** — 48 heavy duty 5DTS units feed coarse ore from surge bins to cone crushers and screens. 324 Type 4DTH units feed fine ore to rod mills. 48 Type 4DTS feeders handle hot pellets. Balanced vibration assures quiet operation, definite control, easier installation, low operating and maintenance costs.

In all types of mining and processing of solids, carefully engineered, precision built Jeffrey machinery and components provide long, dependable service. Write for Catalog 910. The Jeffrey Manufacturing Company, 925 North Fourth Street, Columbus 16, Ohio.



# JEFFREY

CONVEYING • PROCESSING • MINING EQUIPMENT...TRANSMISSION MACHINERY...CONTRACT MANUFACTURING

## NEW EQUIPMENT

### Surface Grinder

Completely new, this machine rapidly performs highly accurate surface-grinding of small and medium-sized work with fine surface finish. Three basic models are available: (1) With hydraulic and hand longitudinal, and hydraulic and hand cross feeds; (2) With hy-

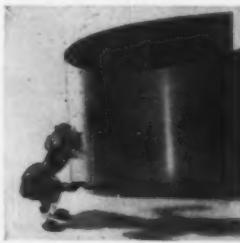
draulic and hand longitudinal, and hand cross feeds; (3) With hand longitudinal and hand cross feeds. Unit construction permits all machines to be assembled to customer requirements. Over 100 combinations of spindles, spindle drives, locations of handwheels, etc., are possible. The machine grinds work to 6-in. wide and 18-in. long. Using a full size 8-in. wheel with a vertical adjustment handwheel on the bed, work to 14-in. high can be

accommodated. With the hand-wheel on the upright, maximum work height is 12 in. Extra vertical



No matter which **FINISH** you like—you can buy it in

### MicroRold® QUALITY STAINLESS STEEL



**2D**—A silvery white, least non-reflective, surface produced by annealing and pickling cold reduced material. Steel sheets & strip in this condition are most ductile and the surface holds lubricant well for severe drawing operations.



**2B**—Steel in the 2D condition which is subsequently rolled on a "skin pass" or temper mill. The surface acquires a bright finish from the polished rolls. This surface is somewhat more dense and hard than 2D and is a better starting surface for later finishing and buffing operations.



**No. 3**—This surface is made by grinding 2B steel with a No. 100 abrasive. This surface is smooth but not as reflective as 2B.



**No. 4**—A fine finish than No. 3 made by grinding 2B steel with a No. 150 abrasive. Like No. 3, this surface is easily blended with hand grinders after forming, drawing or welding.



**No. 7**—Good reflectivity and brilliance made by polishing a No. 4 surface with a No. 400 abrasive. This semi-mirror finish must be protected during fabrication by adhesive paper or stripable plastics lest the finish be marred beyond repair.



**BRIGHT**—A highly reflective surface made by cold reducing with highly polished, glass-hard rolls. This finish is only available in Type 430 stainless.

These are our standard surface finishes that are regularly supplied in all stainless grades (including 18-8 chrome-nickel and 430 straight chromium), with the exception of 430 Bright which is Type 430 exclusively.

These finishes are regularly supplied in sheet and coil form in widths up to 48 inches.

Since No. 3, 4, 7 and 430 Bright are smooth reflective surfaces, they are not recommended for severe drawing without special precautions as the mill finish may be marred. Applications such as dairy ma-

chinery, kitchen and restaurant equipment and architectural decorative work require only local forming, so these highly polished surfaces are not greatly disturbed. All mill polished sheets are carefully packed to avoid handling imperfections. Protective adhesive paper can be specified by the buyer when needed.

For specific information on recommended surface characteristics for a particular stainless steel sheet and strip application, address your request to our Product Development Department.

**WASHINGTON STEEL CORPORATION**

11-L Woodland Avenue

Washington, Pennsylvania



capacity parts increase these capacities to 18 and 16-in. respectively. (Brown & Sharpe Mfg. Co.)

For more data circle No. 51 on postcard, p. 93

### Dock Leveler

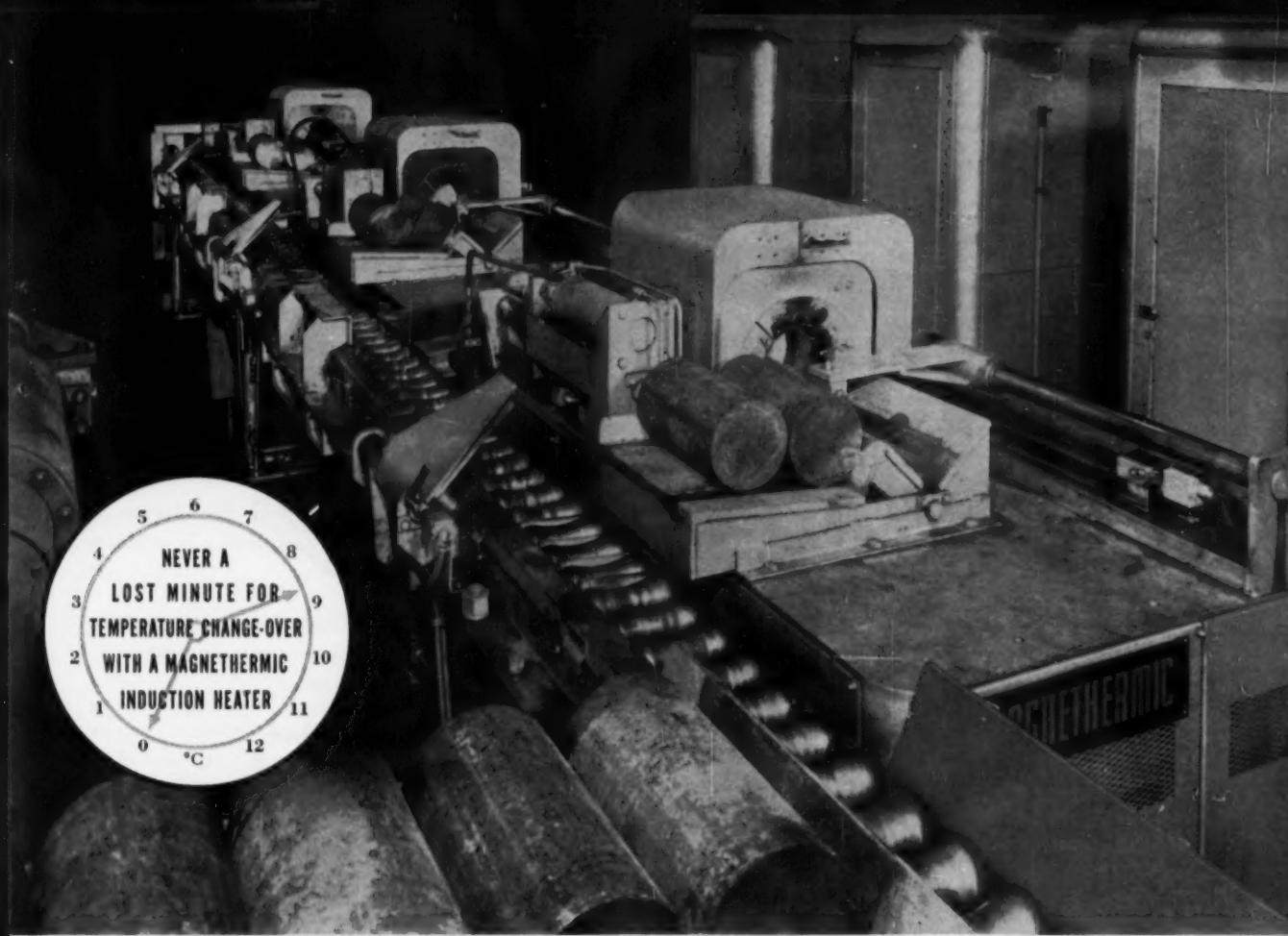
Completely automatic mechanical dock leveling ramps have a built-in "homing instinct." They're operated and counterbalanced by a parallelogram spring and cam mechanism. The ramp platform always returns and locks, instantly and automatically, to a horizontal level with the surrounding dock area when not in use. A 20,000-lb capacity rating applies both to roll-over travel between the dock and the carrier and to cross-over travel when the ramp locks horizontally to become an integral part of the surrounding dock space. The ramp platform measures 6 x 8 ft, including a slanted 14-in. lip section. (Globe Hoist Co.)

For more data circle No. 52 on postcard, p. 93

### Scrap Conveyor

A new conveyor for handling scrap eliminates clogging, wedging and spilling. Designed with multiple closely-fitted pan joints, it leaves no opening during movement for sharp-edged scrap to become wedged in. Special side flanges prevent scrap from spilling over in transit by forming a continuous deep moving pan (Gifford-Wood Co.)

For more data circle No. 53 on postcard, p. 93



"This installation is Wolverine Tube, Division of Calumet & Hecla, Inc., Detroit, Michigan"

Three Magnethermics, 60 cycle, heating 8" x 15" copper and brass billets for a 3000-ton extrusion press. Each heater is individual of the other, operating from a common loading and unloading conveyor. One, two, or three heaters can be used, depending upon production requirements.

## Flexibility for emergency orders - you never have to plan ahead for a temperature change-over... SET THE DIAL—PRESS THE BUTTON—HEATED BILLET

You never have to backlog billets with a Magnethermic Induction Heater. Operator dials the temperature, presses the button, and a uniformly heated billet will be ready in moments. And the next billet and the next will be the same temperature. The Magnethermic heater also records the temperature of each billet so that you have a permanent record for checkback.

When a rush or emergency order upsets the day's schedule, the operator sets the dial to the new temperature and the Magnethermic is ready to deliver immediately. No costly shutdowns normally associated with fuel firing.

More than temperature can be changed over without production delay on a Magnethermic . . . size

of billet or type of alloy, as well as temperature, can be adapted in minutes.

This flexibility more than offsets the higher original costs, as many users of Magnethermics have confirmed. Once you have an induction heater, you can forget about the billet heating for your forging presses, extrusion presses or rolling mills. No more stockpiling. No more backlogging. No more long shutdowns.

Any metal that can be heated can be heated by a Magnethermic Induction Heater . . . low, dual or high frequency. There are Magnethermics in operation for aluminum, beryllium, copper, columbium, magnesium, molybdenum, nickel and nickel alloys, platinum, carbon and alloy steels, titanium, and vanadium.

### Your Inquiry...

Any information on costs or procedure will be promptly sent in response to your request.

**MAGNETHERMIC®**  
CORPORATION  
3990 SIMON RD. • YOUNGSTOWN 7, OHIO



# HERRINGBONE WIRE ROPE

New  
**Longer-Wearing**  
**Pattern in**  
**Wire Rope**  
**Styles!**

After three years of extensive field trials this, the newest of Roebling's wire ropes, is now ready to go to work for you on a service basis that will exceed that of *the wire rope you are now using*.

Roebling Herringbone\* combines the best features of both regular and Lang lay rope constructions; being made up of two pairs of Lang lay strands and two strands of regular lay. The regular lay strands separate the two pairs of Lang lay strands. Thus, in one rope you have the superior flexibility and abrasion resistance of Lang lay and the greater structural stability of regular lay.

For the past three years, under all kinds of conditions, Herringbone has been used for general hoisting, holding and closing lines, shovel ropes, wagon scraper ropes and dragline ropes. The results have been wonderful . . . excellent flexibility, exceptional resistance to shock and abrasion, smooth, easy operation around drums and over sheaves, smooth spooling properties and structural stability unequalled by other rope for the same job.

There has never been a better time—or a wider need—for a wire rope that returns so much service for its cost. And, in addition to being a top performer on the job, Herringbone eliminates the necessity of stocking Lang lay for one purpose and regular lay for another.

You are invited to get in touch with your Roebling distributor or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey, for further and fuller details on the *investment* qualities of this new and highly serviceable rope.

\*Reg. appl. for

**ROEBLING**   
Branch Offices in Principal Cities • Subsidiary of The Colorado Fuel and Iron Corporation

## The Iron Age Summary

## Market Will Bear Watching

**Steel is in easy supply now. But a revival of dormant markets could change the picture.**

**Watch for a pickup in construction, oil and gas, equipment, and railroads. They hold the key.**

■ The steel market will bear closer watching from now on. It's not so much what **is** happening, but what **might** happen that could change the complexion of the market.

At the moment, the market is more or less marking time. Better demand from automotive, appliances, farm equipment, and miscellaneous users is holding the market together on an even keel. It's expected to stay that way until the end of the year.

**What to Watch**—But the markets to watch are construction, oil and gas, capital equipment, and the railroads. None of these is showing much strength just now. Still, they normally are important factors in the steel market, and there is reason

to believe at least some of them will come to life in the first and second quarters of next year.

When they do, their orders will jack up production of heavier steel products—plates, structural, line-pipe, and tubing for the drilling and lining of oil wells. Construction also affects reinforcing bars and construction wire.

**What Could Happen**—No one is looking for a real bind in any steel product during the next year. The mills have done too good a job of beefing up their ingot and finished steel capacity. At the same time, there could be temporary periods of tightness as mill delivery promises lengthen.

Meanwhile, the mills are making the most of a generally lack-luster market. If it means the difference between getting and losing an order, most of them will promise quick delivery. Sometimes they can't live up to delivery promises, but they go all-out trying.

**Customer Is King**—Many customers are demanding—and getting

—the red carpet treatment from the mills.

The automakers apparently have decided to pull out all the stops from now until year-end. Most of them are resorting to overtime to maintain a high level of output. But they still haven't enough proof that their new cars are really going over with the public. The current speed-up is aimed more at filling the pipelines drained by strike losses. There could be a slowdown in the first quarter.

**Detroit Is Cautious**—As a result of this type of thinking, the auto companies are keeping their steel inventories relatively low. They are using more steel, and taking in more steel than they had been. But they're holding the leash on advance ordering and pressuring the mills for quick delivery when they need it.

If car sales go good in the first and second quarters of '59, Detroit probably would reverse its close-to-the-vest inventory policy. The possibility of labor trouble in steel would be an added incentive.

## Steel Output, Operating Rates

Production (Net tons, 000 omitted)	This Week 2,025	Last Week 2,011	Month Ago 2,025	Year Ago 1,843
<b>Ingot Index</b>				
(1947-1949 = 100)	126.0	125.1	126.0	114.7
<b>Operating Rates</b>				
Chicago	89.0	87.0	89.0	73.0
Pittsburgh	69.0	69.0	69.5	73.0
Philadelphia	73.0	73.0	74.0	85.0
Valley	55.0	55.5*	63.5	68.0
West	81.5	82.0*	79.5	84.0
Cleveland	72.0	70.0*	80.0	66.0
Buffalo	68.0	78.0	78.0	78.0
Detroit	95.0	95.0	81.0	86.0
South	60.5	58.0	63.5	60.5
South Ohio River	81.0	81.0	82.0	82.0
Upper Ohio River	88.5	88.0	90.0	63.0
St. Louis	98.0	98.0	96.0	87.0
<b>Aggregate</b>	75.0	74.5	75.0	72.0

\*Revised

## Prices At a Glance

	This Week	Week Ago	Month Ago	Year Ago
(Cents per lb unless otherwise noted)				
<b>Composite price</b>				
Finished Steel, base	6.196	6.196	6.196	5.967
Pig Iron (gross ton)	\$66.41	\$66.41	\$66.41	\$66.42
Scrap, No. 1 hvy (Gross ton)	\$40.50	\$41.17	\$42.50	\$32.33
No. 2 bundles	\$29.00	\$29.33	\$28.83	\$24.33
<b>Nonferrous</b>				
Aluminum ingot	26.80	26.80	26.80	28.10
Copper, electrolytic	29.00	29.00	29.00	27.00
Lead, St. Louis	12.80	12.80	12.80	13.30
Magnesium	36.00	36.00	36.00	36.00
Nickel, electrolytic	74.00	74.00	74.00	74.00
Tin, Straits, N. Y.	99.25	99.25	97.125	87.25
Zinc, E. St. Louis	11.50	11.30	11.00	10.00

# Canco Adopts New Price System

**Bold new approach to pricing expected to save American Can Co. customers more than \$9 million a year.**

**Method sets up separate f.o.b. price for every type of can the company makes.**

■ American Can Co. expects to save its customers over \$9 million a year by adopting a new pricing philosophy.

Two major pricing changes, together with the company's coil processing program, will make these

savings possible, Canco president William C. Stolk said last week.

**Coil Use Helps**—With its eight processing plants Canco buys coiled tinplate stock and does its own inspecting, shearing, stacking, and sorting. Formerly Canco bought mill-processed tinplate and paid for the processing.

**Two Phase Move**—The new price policy will:

**Establish, effective January 1, a separate f.o.b. price at each of the company's 68 plants for each type and style of can it makes.**

This plan replaces a former method of pricing which divided the

country into two areas, east and west of the Rockies. Under the new system, Mr. Stolk noted, prices "will now reflect to customers the freight-cost advantages of their nearness to the steel mills supplying Canco."

**Price every can more directly in regard to the raw material and labor costs involved in its manufacture.**

**Out With the Old**—This policy, which Canco put into effect Sept. 25, eliminates the practice of making uniform, across-the-board price changes in all types of cans based on a single, average percentage figure. Now there will be a separate price for each type and style of can.

"These changes," Mr. Stolk said, "follow a company philosophy that every outmoded and impractical method or system should be junked just as quickly as an obsolete piece of machinery."

Canco expects to hold the line on its new prices until next October except for "adjustments that may be necessary to reflect any increases . . . in tinplate prices."

**Rising Costs**—Giving some background on the changes Mr. Stolk explained that as much as 85 pct of the cost of a can represents tinplate and labor charges. Since 1946, he pointed out, the base price of quarter-pound electrolytic tinplate has increased 109 pct. During the same period, Canco's average hourly wage rate went up 166 pct. (See chart in photo.)

However, he emphasized, the price of a standard No. 2 can, made from the quarter-pound plate, increased only 93.5 pct. "From this spread," he added, "it is obvious . . . that we have been absorbing substantial proportions of these cost increases."



**COST-PRICE SPREAD:** William C. Stolk, American Can Co. president, shows how can prices went up only 93.5 pct since 1946 while tinplate costs rose 109 pct and labor costs increased by 166.7 pct.

# Birdseye view of the future...

## Youngstown's Expansion

Program provides more

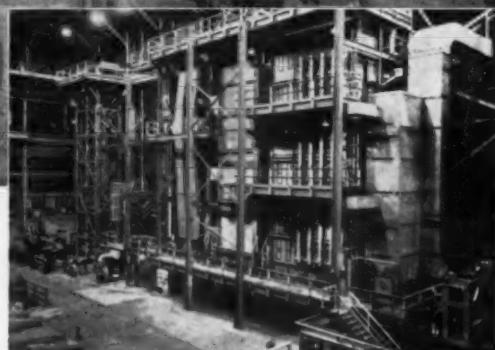
quality steel for

Mid-America

The hustle, the feel of the future and the booming spirit of expansion . . . this is the spirit of Youngstown. The birdseye view shows our Indiana Harbor facilities where we are putting this spirit to work in the Chicago area. In addition to our No. 2 Blooming Mill (2), No. 2 Open Hearth Shop (3), Merchant Mill (4), No. 1 Open Hearth Shop (5), Billet and Skelp Mill (6), Continuous Weld Pipe Mills (7), Blast Furnaces (8), Coke Plant (10), Strip and No. 1 Tin Mills (11), the Cold Reduced Sheet Mill (12) . . . our new No. 3 Seamless Tube Mill (1), our new (9) Sintering Plant (construction began in March 1958) and our new No. 2 Tin Mill (13) are shown. These last three expansions are pointed directly at the growing markets of the Mid-Continent. Like the pioneers who made America the great nation it is, Youngstown moves toward new horizons . . . new ways to supply your steel needs through quality products and friendly, efficient service!



Huge new Continuous Annealing Line in our No. 2 Tin Plate Mill, Indiana Harbor Plant.



The world's largest Rotary Billet-Heating Furnace in our No. 3 Seamless Tube Mill, Indiana Harbor Plant.



THE

**YOUNGSTOWN**

SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel, Youngstown, Ohio

PLANTS AT YOUNGSTOWN, OHIO AND INDIANA HARBOR, INDIANA

# How Soon Will Plate Sales Improve?

**Although the plate market still lags, some mills predict deliveries may start to stretch out soon.**

**But others with thin order books don't see any signs of a substantial pickup.**

## ■ When will plate sales improve?

All the aspects of a lagging market are still plentiful. Mills in many areas are able to fill sheared plate orders in two weeks or less. The exception is Chicago where a surge of buying has pushed deliveries out to 4-6 weeks.

Despite the inventory building there most plate users in other areas are still reluctant to increase stocks. New orders are running about 50 pct below normal, according to one mill sales manager.

"Our low point for the year was April," he says. "Orders picked up from that point until July. Since then they have leveled off at about the July level."

Other plate mills, however, paint a brighter picture. For some, November is the best sales month this year. December orders may be even better. There is a prospect, these sellers say, that plate deliveries may lengthen before long.

All market observers believe a plate upturn is due. But some don't expect a substantial pickup until capital spending improves, possibly by mid-1959. Hedge buying before then to beat price increases or steel labor troubles will help some.

**Sheet and Strip** — Buyers are doing a little more advance booking, mills say, and putting less pressure on them for delivery. Mill

backlogs are up slightly over the October level. But this reflects the increase in forward buying rather than heavier tonnage ordering.

Hot- and cold-rolled sheet continue in heavy demand in the **Chicago** area. (See delivery table below.) Customers are already booking first quarter tonnages.

**Galvanized Sheet** — Deliveries are still stretching out into the first quarter. A large **Eastern** mill quotes mid-February delivery. Some **Midwest** mills are sold out all the way through the first quarter.

**Structurals** — Orders for standard structurals continue to lag in most markets. Wide flange beams are improving but still have not regained their May-June level. However, in the **Chicago** market structural fabricators are stocking up. As a result mill deliveries have lengthened a week or two. But the situation is spotty.

**Stainless** — There's little prospect for an early increase in stainless prices, market observers say. This is predicted even though most stainless prices didn't go up when carbon steel prices were advanced last summer. At present there's still a great deal of price shading in flat-rolled stainless products. Producers believe sales may improve after the first of the year.

**Wire Products** — Hurt by foreign competition four U. S. producers are asking the Tariff Commission for help. The four—Atlantic Steel Co., Continental Steel Corp., Keystone Steel & Wire Co., and Northwestern Steel & Wire Co.—want an investigation of imported barbed wire, wire nails, and the fencing grades of galvanized wire. They are asking the Commission to hold public hearings on the problem and act to aid domestic wire makers.

**Electrode Prices Rise** — Price increases of about 5 pct for carbon and graphite electrodes and graphite anodes were announced Nov. 17 by National Carbon Co. Div. of Union Carbide Corp.

## Delivery Promises at a Glance

	East	Pittsburgh	Cleveland	Detroit	Chicago	West Coast
CR Carbon Sheet	5-6 wks	5-6 wks	5-6 wks	4-6 wks	8-9 wks*	6 wks
HR Carbon Sheet	4-5 wks*	3-4 wks	4-5 wks	3-5 wks	6-8 wks*	4-5 wks
CR Carbon Strip	5-6 wks	5-6 wks	5-6 wks	4-6 wks	6-8 wks*	4-6 wks
HR Carbon Strip	4-5 wks*	3-4 wks	4-5 wks	3-5 wks	5-7 wks*	4 wks
HR Carbon Bars	2-4 wks	2-4 wks*	3-4 wks	2-4 wks	5-7 wks*	2-3 wks
CF Carbon Bars	1-4 wks	2-4 wks	2-3 wks	2-4 wks	5-7 wks*	1-2 wks
Heavy Plate	2-3 wks*	1-4 wks			4-6 wks*	4-6 wks
Light Plate	2-3 wks	1-2 wks	3-4 wks		4-6 wks*	4-6 wks
Merchant Wire	Stock	1 wk	1 wk		1-5 wks*	3-4 wks
Oil Country Goods	Stock	Stock	Stock		1-4 wks*	
Linepipe	2-4 wks	2-8 wks	Stock		5-8 wks*	4-6 wks
Buttweld Pipe	Stock	Stock	Stock	Stock	3-5 wks	2-4 wks
Std. Structurals	2-4 wks	1-4 wks		2-5 wks	2-5 wks	4 wks
CR Stainless Sheet	3-4 wks*	1-4 wks	3-4 wks	2-3 wks		
CR Stainless Strip	3-4 wks*	1-4 wks	3-4 wks	2-3 wks		

\* Delivery promises have lengthened since 10/30/58.

# COMPARISON OF PRICES

(Effective Nov. 24, 1958)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

Nov. 24 Nov. 18 Oct. 28 Nov. 26  
1958 1958 1958 1958

Flat-Rolled Steel: (per pound)			
Hot-rolled sheets	5.10¢	5.10¢	5.10¢
Cold-rolled sheets	6.27¢	6.27¢	6.05
Galvanized sheets (10 ga.)	6.87¢	6.87¢	6.60
Hot-rolled strip	5.10	5.10	4.925
Cold-rolled strip	7.42¢	7.42¢	7.17
Plate	5.30	5.30	5.30*
Plates, wrought iron	13.55	13.55	13.15
Stainl'n C-R strip (No. 302)	52.00	52.00	52.00

## Tin and Terneplate: (per base box)

Tinplate (1.50 lb.) coker	\$10.65	\$10.65	\$10.30
Tin plates, electro (0.50 lb.)	9.35	9.35	9.00
Special coated mfg. terne	9.90	9.90	9.55

## Bars and Shapes: (per pound)

Merchant bar	5.675¢	5.675¢	5.675¢
Cold finished bar	7.65	7.65	7.30
Alloy bars	6.72¢	6.72¢	6.47¢
Structural shapes	5.50	5.50	5.27¢
Stainless bars (No. 302)	45.00	45.00	45.00
Wrought iron bars	14.90	14.90	14.45

## Wire: (per pound)

Bright wire	8.00¢	8.00¢	8.00¢
Rails: (per 100 lb.)			
Heavy rails	\$5.75	\$5.75	\$5.525

## Light rails

Light rails	6.72¢	6.72¢	6.50
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## Semifinished Steel: (per net ton)

Rerolling billets	\$80.00	\$80.00	\$77.50
Slabs, rerolling	80.00	80.00	77.50
Forging billets	99.50	99.50	96.00
Alloy blooms, billets, slabs	119.00	119.00	114.00

## Wire Rods and Skelp: (per pound)

Wire rods	6.40¢	6.40¢	6.15¢
Skelp	5.05	5.05	4.87¢

## Finished Steel Composite: (per pound)

Base price	6.196¢	6.196¢	5.907¢
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## Finished Steel Composite

Weighed index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

## Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

# COMPARISON OF PRICES

(Effective Nov. 24, 1958)

Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
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Pig Iron: (per gross ton)	Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
Foundry, del'd Phila.	\$70.57	\$70.57	\$70.57	\$70.51
Foundry, Southern C'nti	73.87	73.87	73.87	71.65
Foundry, Birmingham	62.50	62.50	62.50	62.50
Foundry, Chicago	66.50	66.50	66.50	66.50
Basic, del'd Philadelphia	70.07	70.07	70.07	70.01
Basic, Valley furnace	66.00	66.00	66.00	66.00
Malleable, Chicago	66.50	66.50	66.50	66.50
Malleable, Valley	66.50	66.50	66.50	66.50
Ferrromanganese, 74-76 pct Mn, cents per lb.3	12.25	12.25	12.25	12.25

Pig Iron Composite: (per gross ton)	Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
Pig iron	\$66.41	\$66.41	\$66.41	\$66.42

Scrap: (per gross ton)	Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
No. 1 steel, Pittsburgh	\$44.50	\$44.50	\$45.50	\$33.50
No. 1 steel, Phila. area	35.50	35.50	39.50	33.00
No. 1 steel, Chicago	42.50	42.50	42.50	30.50
No. 1 bundles, Detroit	36.50	36.50	35.50	22.50
Low phos., Youngstown	45.50	45.50	46.50	30.50
No. 1 mach'y cast, Pittsburgh	51.50	51.50	51.50	50.50
No. 1 mach'y cast, Phila.	49.50	49.50	49.50	50.50
No. 1 mach'y cast, Chicago	53.50	53.50	53.50	40.50

Steel Scrap Composite: (per gross ton)	Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
No. 1 hvy. melting scrap	\$41.17	\$42.50	\$32.33	
No. 2 bundles	29.00	29.33	28.83	24.33

Coke, Connellsville: (per net ton at oven)	Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
Furnace coke, prompt	\$14.50	\$14.50	\$14.50	\$15.38
Foundry coke, prompt	\$18-18.50	\$18-18.50	\$18-18.50	\$17.50-\$19

Nonferrous Metals: (cents per pound to large buyers)	Nov. 24 1958	Nov. 18 1958	Oct. 28 1958	Nov. 26 1958
Copper, electrolytic, Conn.	29.00	29.00	29.00	27.00
Copper, Lake, Conn.	29.00	29.00	29.00	27.00
Tin, Straits, N. Y.	99.25	99.25	97.125	87.25
Zinc, East St. Louis	11.50	11.50	11.00	10.00
Lead, St. Louis	12.80	12.80	12.80	13.30
Aluminum, virgin ingot	26.80	26.80	26.80	28.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	33.00

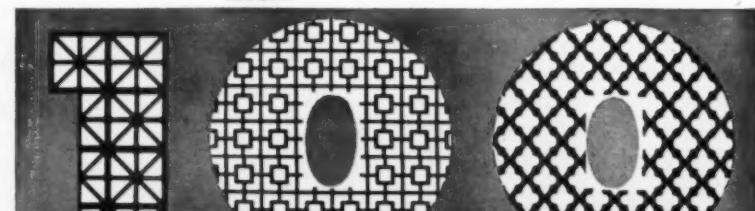
† Tentative. <sup>‡</sup> Average. <sup>\*</sup> Revised.

## Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

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# Auto Lists Threaten Dealer Market

**It looks as if December will bring unusually large tonnages of industrial scrap.**

**Surpluses loom that may hang over the market well into the first quarter of 1959.**

■ A bumper crop of industrial scrap is headed for the market. Auto lists in December are expected to be the heaviest in years and many brokers don't see how the market can absorb it all.

In Michigan, two of the Big Three automakers are expected to produce 48,000 tons of No. 1 factory bundles and from 20,000 to 25,000 tons of busheling.

Fisher Body Div. alone is expected next month to produce 78,000 tons of scrap in eight plants throughout the Midwest and Canada. It will mean rough going for the dealer market during December and probably well into the first quarter of 1959.

Adding to weakness in the Midwest is continued influx of eastern scrap, which so far has pushed as far West as the Ohio River Valley and Cincinnati. The Chicago market is unaffected. Some dealer grades there are even showing a flicker of strength.

But a drop in openhearth scrap prices in Pittsburgh and Philadelphia caused a 67¢ decline in The IRON AGE heavy melting Composite Price, now at \$40.50.

**Pittsburgh** — Prices of dealer openhearth grades are off \$1. Factory bundles are down \$2. With heavy scrap tonnages bearing down on a quiet market, dealers show a

willingness to sell at reduced prices. A few good mill orders might check the slide but there are none in sight. The eastern overflow of scrap is moving into local yards and December auto lists are expected to be the heaviest in years.

**Chicago** — Scrap flow began to pick up in volume last week and dealer prices tightened almost immediately. Dealer No. 1 bundles, for which brokers had been offering \$40 to \$41, moved immediately to \$42. Fresh buys of No. 1 factory bundles at existing price levels seemed to peg this price.

**Philadelphia** — The market is at a standstill. Prices are weaker in all categories and further price drops could come at any moment. Dealer morale is low. There are indications that some are willing to sell at lower prices.

**New York** — This market is virtually dead. Prices are unchanged, but only because there are no sales on which to establish new quotations for steelmaking grades. All stainless grades except 430 turnings are off \$5 a ton.

**Detroit** — The market is holding precariously, waiting for the December auto lists to close. Tonnage offered will be a near-record, and is very likely to depress the market. Mills here have good inventories and are not likely to be a big factor in the bidding. Interest from outside has not been great. Feeling is that a substantial amount of the auto scrap will not find a home.

**Cleveland** — Eastern tonnage normally going to export is now back-

ing up into the Valley at as low as \$42 in small quantities. But representative tonnages of No. 1 dealer material will still bring about \$44. Most Valley prices are down \$1 and Cleveland is down the same amount in sympathy. Dealers are resigned to a weakened market for the rest of the year.

**St. Louis** — Despite weakness in other markets, prices here continue steady. Principal steel mills are operating at high levels and scrap demand is equal to the flow. A railroad list of 200 carloads went to Kansas City consumers at quoted prices, except for rerolling rails, down \$1.

**Birmingham** — Practically no openhearth scrap is moving here. All district mills are out of the market and exporters have curtailed purchases for the time being. There has been some movement of cast scrap at going prices.

**Cincinnati** — Market is \$1 weaker locally and could decline farther when support from northern and western districts subsides. Area mills are not anxious for scrap but regular orders for December are expected. Some eastern tonnage is showing up in the Ohio River Valley.

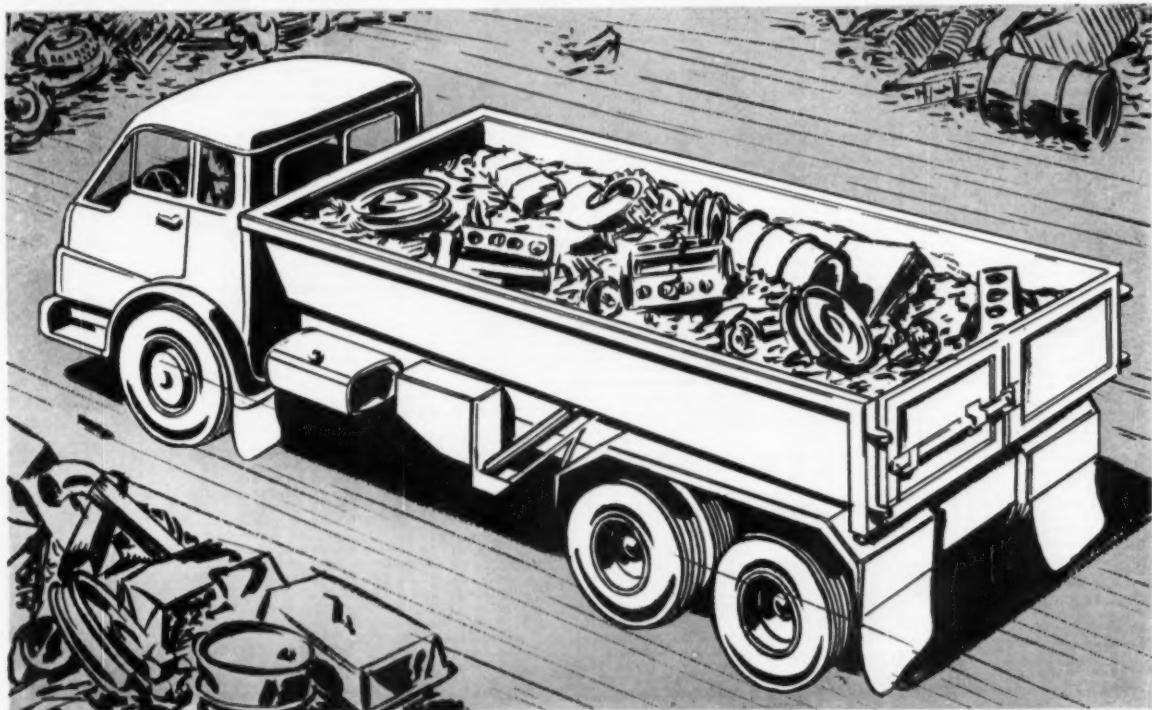
**Buffalo** — The market is quiet and prices are unchanged. Little activity is expected the remainder of the year.

**Boston** — Cast grades dropped \$1 from the levels they had been holding the past several weeks. Steelmaking grades held their own, but No. 2 bundles are having a hard time finding a home.

**West Coast** — There is no life in this market. Mills are buying very little. Few dealers look for a December upturn.

**Houston** — The scrap outlook is dim. It appears the market is in for rough going until after Jan. 1. Mexico entered the market for a small order at lower prices, but it was not enough to set a pattern.

# BIG NEW HUGE-HAUL



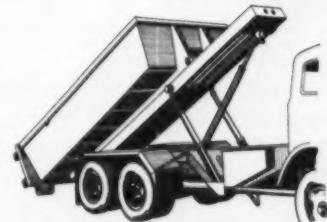
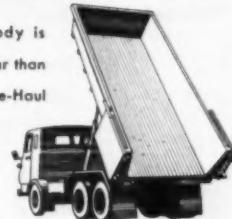
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EXPORT SALES: BORG-WARNER INTERNATIONAL CORPORATION, CHICAGO

## SCRAP PRICES (Effective Nov. 21, 1958)

### Pittsburgh

No. 1 hvy. melting	\$43.00 to \$44.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 dealer bundles	43.00 to 44.00
No. 1 factory bundles	48.00 to 49.00
No. 2 bundles	32.00 to 33.00
No. 1 busheling	43.00 to 44.00
Machine shop turn.	21.00 to 22.00
Shoveling turnings	25.00 to 26.00
Cast iron borings	25.00 to 26.00
Low phos. punch'g. plate	48.00 to 49.00
Heavy turnings	36.00 to 37.00
No. 1 RR hvy. melting	45.00 to 46.00
Scrap rails, random lgth.	54.00 to 55.00
Rails 8 ft and under	57.00 to 58.00
RR specialties	51.00 to 52.00
No. 1 machinery cast	51.00 to 52.00
Cupola cast	45.00 to 46.00
Heavy breakable cast	43.00 to 44.00
Stainless	
18-8 bundles and solids	225.00 to 230.00
18-8 turnings	125.00 to 130.00
430 bundles and solids	125.00 to 130.00
410 turnings	50.00 to 60.00

### Chicago

No. 1 hvy. melting	\$42.00 to \$43.00
No. 2 hvy. melting	38.00 to 39.00
No. 1 dealer bundles	42.00 to 43.00
No. 1 factory bundles	48.00 to 49.00
No. 2 bundles	31.00 to 32.00
No. 1 busheling	42.00 to 43.00
Machine shop turn.	22.00 to 23.00
Mixed bor. and turn.	24.00 to 25.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	23.00 to 24.00
Low phos. forge crops	52.00 to 53.00
Low phos. punch'g. plate	48.00 to 49.00
Low phos. 3 ft and under	46.00 to 47.00
No. 1 RR hvy. melting	46.00 to 47.00
Scrap rails, random lgth.	52.00 to 53.00
Rerolling rails	63.00 to 64.00
Rails 3 ft and under	59.00 to 60.00
Angles and splice bars	54.00 to 55.00
RR steel car axles	71.00 to 72.00
RR couplers and knuckles	51.00 to 52.00
No. 1 machinery cast	53.00 to 54.00
Cupola cast	47.00 to 48.00
Heavy breakable cast	41.00 to 42.00
Cast iron wheels	42.00 to 43.00
Malleable	56.00 to 57.00
Stove plate	44.00 to 45.00
Steel car wheels	52.00 to 53.00
Stainless	
18-8 bundles and solids	220.00 to 225.00
18-8 turnings	130.00 to 135.00
430 bundles and solids	115.00 to 120.00
430 turnings	65.00 to 70.00

### Philadelphia Area

No. 1 hvy. melting	\$25.00 to \$26.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 dealer bundles	35.00 to 36.00
No. 2 bundles	22.50 to 23.50
No. 1 busheling	35.00 to 36.00
Machine shop turn.	19.00 to 20.00
Mixed bor. short turn.	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Shoveling turnings	23.00 to 24.00
Clean cast. chem. borings	32.00 to 33.00
Low phos. 5 ft and under	38.00 to 39.00
Low phos. 2 ft. punch'g.	39.00 to 40.00
Elec. furnace bundles	37.00 to 38.00
Heavy turnings	32.00 to 33.00
RR specialties	43.00 to 44.00
Rails 18 in. and under	57.00 to 58.00
Cupola cast	40.00 to 41.00
Heavy breakable cast	41.00 to 43.00
Cast iron car wheels	44.00 to 45.00
Malleable	56.00 to 57.00
No. 1 machinery cast	49.00 to 50.00

### Cincinnati

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$37.50 to \$38.50
No. 2 hvy. melting	32.50 to 33.50
No. 1 dealer bundles	37.50 to 38.50
No. 2 bundles	25.00 to 26.00
Machine shop turn.	19.00 to 20.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	19.00 to 20.00
Low phos. 18 in. and under	46.00 to 47.00
Rails, random length	49.00 to 50.00
Rails, 18 in. and under	55.00 to 56.00
No. 1 cupola cast	44.00 to 45.00
Hvy. breakable cast	39.00 to 40.00
Drop broken cast	47.00 to 48.00

### Youngstown

No. 1 hvy. melting	\$43.00 to \$44.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 dealer bundles	43.00 to 44.00
No. 2 bundles	30.00 to 31.00
Machine shop turn.	20.50 to 21.50
Shoveling turnings	24.50 to 25.50
Low phos. plate	45.00 to 46.00

### Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

### Cleveland

No. 1 hvy. melting	\$39.50 to \$40.50
No. 2 hvy. melting	30.50 to 31.50
No. 1 dealer bundles	39.50 to 40.50
No. 1 factory bundles	43.50 to 44.50
No. 2 bundles	26.50 to 27.50
No. 1 busheling	39.50 to 40.50
Machine shop turn.	16.50 to 17.50
Mixed bor. and turn.	21.50 to 22.50
Shoveling turnings	21.50 to 22.50
Cast iron borings	21.50 to 22.50
Cut structural & plates, 2 ft & under	47.50 to 48.50
Drop forge flashings	39.50 to 40.50
Low phos. punch'g. plate	41.50 to 42.50
Foundry steel, 2 ft & under	41.00 to 42.00
No. 1 RR hvy. melting	46.00 to 47.00
Rails 2 ft and under	56.00 to 57.00
Rails 18 in. and under	57.00 to 58.00
Steel axle turnings	25.00 to 26.00
Railroad cast.	50.00 to 51.00
No. 1 machinery cast	49.00 to 50.00
Stove plate	45.00 to 46.00
Malleable	61.00 to 62.00
Stainless	
18-8 bundles	215.00 to 220.00
18-8 turnings	115.00 to 120.00
430 bundles	120.00 to 125.00

### Buffalo

No. 1 hvy. melting	\$36.00 to \$37.00
No. 2 hvy. melting	29.00 to 30.00
No. 1 busheling	36.00 to 37.00
No. 1 dealer bundles	36.00 to 37.00
No. 2 bundles	27.00 to 28.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and turn.	18.00 to 19.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	16.00 to 17.00
Low phos. plate, 2 ft and under	45.00 to 46.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	59.00 to 60.00
No. 1 machinery cast	48.00 to 49.00
No. 1 cupola cast	44.00 to 45.00

### St. Louis

No. 1 hvy. melting	\$28.00 to \$29.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 dealer bundles	40.00 to 41.00
No. 2 bundles	29.00 to 30.00
Machine shop turn.	18.00 to 19.00
Shoveling turnings	20.00 to 21.00
No. 1 RR hvy. melting	45.00 to 46.00
Rails, random lengths	48.00 to 49.00
Rails, 18 in. and under	53.00 to 54.00
Angles and splice bars	46.00 to 47.00
RR specialties	47.00 to 48.00
Cupola cast	48.00 to 49.00
Heavy breakable cast	58.00 to 59.00
Cast iron brake shoes	38.00 to 39.00
Stove plate	42.00 to 43.00
Cast iron borings	22.00 to 23.00
Cast iron car wheels	44.00 to 45.00
Rerolling rails	59.00 to 60.00
Unstripped motor blocks	39.00 to 40.00

### Birmingham

No. 1 hvy. melting	\$36.00 to \$37.00
No. 2 hvy. melting	29.00 to 30.00
No. 1 dealer bundles	36.00 to 37.00
No. 2 bundles	23.00 to 24.00
No. 1 busheling	36.00 to 37.00
Machine shop turn.	24.00 to 25.00
Shoveling turnings	25.00 to 26.00
Cast iron borings	12.00 to 14.00
Electric furnace bundles	40.00 to 41.00
Elec. furnace, 3 ft & under	37.00 to 38.00
Bar crops and plate, 2 ft	42.00 to 44.00
Structural and plate, 2 ft	42.00 to 44.00
No. 1 RR hvy. melting	38.00 to 39.00
Scrap rails, random lgth.	47.00 to 48.00
Rails, 18 in. and under	52.00 to 53.00
Angles and splice bars	47.00 to 48.00
Rerolling rails	58.00 to 59.00
No. 1 cupola cast	54.00 to 55.00
Stove plate	53.00 to 54.00
Cast iron car wheels	42.00 to 43.00
Unstripped motor blocks	42.00 to 43.00

### New York

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$26.00 to \$27.00
No. 2 hvy. melting	23.00 to 24.00
No. 3 dealer bundles	17.00 to 18.00
Machine shop turnings	10.00 to 11.00
Mixed bor. and turn.	13.00 to 14.00
Shoveling turnings	14.00 to 15.00
Clean cast. chem. borings	25.00 to 26.00
No. 1 machinery cast	37.00 to 38.00
Mixed yard cast	36.00 to 37.00
Heavy breakable cast	34.00 to 35.00
Stainless	
18-8 prepared solids	185.00 to 190.00
18-8 turnings	80.00 to 85.00
430 prepared solids	65.00 to 70.00
430 turnings	20.00 to 25.00

### Detroit

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$34.00 to \$35.00
No. 2 hvy. melting	27.00 to 28.00
No. 1 dealer bundles	36.00 to 37.00
No. 2 bundles	22.00 to 23.00
No. 1 busheling	34.00 to 35.00
Drop forge flashings	32.00 to 33.00
Machine shop turn.	15.00 to 16.00
Mixed bor. and turn.	15.00 to 16.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	17.00 to 18.00
Heavy breakable cast	34.00 to 35.00
Mixed cupola cast	42.00 to 43.00
Automotive cast	46.00 to 47.00
Stainless	
18-8 bundles and solids	205.00 to 210.00
18-8 turnings	100.00 to 105.00
430 bundles and solids	105.00 to 110.00

### Boston

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$29.00 to \$30.00
No. 2 hvy. melting	23.00 to 24.00
No. 1 dealer bundles	29.00 to 30.00
No. 2 bundles	16.00 to 17.00
No. 1 busheling	29.00 to 30.00
Machine shop turn.	5.00 to 9.00
Shoveling turnings	12.00 to 13.00
Clean cast. chem. borings	20.00 to 21.00
No. 1 machinery cast	32.00 to 33.00
Mixed cupola cast	32.00 to 33.00
Heavy breakable cast	29.00 to 30.00
Stove plate	31.00 to 32.00

### San Francisco

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	28.00
No. 2 bundles	22.00
No. 1 cupola cast	15.00
No. 1 cupola cast	45.00

### Los Angeles

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$34.00
No. 2 hvy. melting	32.00
No. 1 dealer bundles	30.00
No. 2 bundles	17.00
Machine shop turn.	11.00
Shoveling turnings	13.00
Cast iron borings	13.00

### Seattle

Brokers buying prices per gross ton on cars:	
No. 1 hvy. melting	\$30.00
No. 2 hvy. melting	28.00
No. 2 bundles	22.00
No. 1 cupola cast	15.00
Mixed yard cast	16.00

### Hamilton, Ont.

Brokers buying prices per gross ton on cars:</
------------------------------------------------

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**LEADERS IN IRON AND STEEL SCRAP SINCE 1889**



# Inco Head Says 'No Shortage Ever'

**Despite strike, Inco has enough nickel to cover seven or eight months' business.**

**And capacity is expected to move up faster than demand is likely to.**

■ "The days of shortage in nickel are over forever."

These words have weight because they were spoken by Dr. John F. Thompson, chairman of the International Nickel Co. His firm produces about 60 pct of the Free World's nickel.

And they carry even more weight because Inco's entire production has been shut down by a strike since Sept. 24.

**Strike** — Dr. Thompson doesn't believe the strike will last much longer because the dispute is over money rather than a principle. Actually, the company and the union aren't talking just now.

Despite the strike, Inco has enough metal on hand to supply customers for seven or eight months at the current rate of buying. If demand spurs, the government has large stocks of nickel that are generally considered to be "available."

**Supply** — If buying moves up gradually there can be no problem. Freeport Nickel Co. will begin selling nickel in 1959. And output from Inco's gigantic Manitoba project will begin hitting the market in 1960.

The overwhelming availability doesn't bother the Inco head. "We prefer heavy stocks," he says. The

reason: They insure customers and potential customers of Inco's determination to maintain ample supplies.

For similar reasons Dr. Thompson predicts no change in the nickel price in the near future.

**Markets Firming** — Nickel markets are definitely firming. A survey by the National Assn. of Waste Material Dealers, Metal Dealers Div., indicates stainless and alloy buying has made a "good recovery." But the movement has been spotty.

Nickel-chrome alloys are in "lively demand." Copper-nickel alloys are still dull with little promise of any immediate pickup. Monel is the weakest grade in the market. Export is slow.

## Government Nickel

The management of the government's nickel plant at Nicaro, Cuba, have some real problems on their hands. The plant is right in the middle of a shooting war.

The Cuban government assigned 200 troops to the plant to protect it from rebels. The insurgents accepted the challenge and took over a large warehouse and several buildings housing supplies in attacking. Cuban planes bombed and strafed the buildings, inflicting about \$200,000 in damages on them.

To make things worse, the plant's ore supply is right in the heart of the heaviest fighting. Little if any mining is being done, and the plant may have to close down soon.

**Lower Price** — Observers in Washington say this incident will cost the U. S. even after it is over. The plant has been officially for sale for over a year. The government procrastinated over details and didn't get around to asking for bids. It is unlikely now, say observers, that the plant will bring as much as it would have had it been sold quickly. The estimated value is \$100 million.

## Aluminum

Production is picking up. The total for October topped the previous month—up to 137,419 tons from 124,713 tons, reports the Aluminum Assn.

It is almost certain that output this month will top October. And it is also becoming equally apparent that production for the entire year will not top 1957 as some observers had been predicting earlier in the year.

Total primary production this year, through October is 1,268,650 tons, compared to 1,372,653 tons in the corresponding period last year.

Tin prices for the week: Nov. 19—99.625; Nov. 20—99.75; Nov. 21—99.375; Nov. 24—99.25.\*

\* Estimate.

## Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum pig	24.70	24.00	8/1/58
Aluminum Ingot	26.80	26.10	8/1/58
Copper (E.)	29.00	27.50	10/23/58
Copper (CS)	30.00	28.50	10/20/58
Copper (L)	29.00	27.50	10/23/58
Lead, St. L.	12.80	12.30	10/14/58
Lead, N. Y.	13.00	12.50	10/14/58
Magnesium Ingot	36.00	34.00	8/13/58
Magnesium pig	35.25	33.75	8/13/58
Nickel	74.00	64.50	12/6/58
Titanium sponge	162-182	160-200	11/3/58
Zinc, E. St. L.	11.80	11.00	11/7/58
Zinc, N. Y.	12.00	11.50	11/7/58

**ALUMINUM:** 99% Ingot frt allwd. **COPPER:** (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. **LEAD:** common grade. **MAGNESIUM:** 99.8% pig Velasco, Tex. **NICKEL:** Port Colbourne, Canada. **ZINC:** prime western. **TIN:** see above; other primary prices, pg. 117.

## NONFERROUS PRICES

### MILL PRODUCTS

(Cents per lb unless otherwise noted)

#### ALUMINUM

(Base 30,000 lb, f.o.b. ship pt., frt. allowed)

##### Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.012	.081	136	250-
1100, 3000	45.7	43.8	42.8	43.3
5052	53.1	48.4	46.9	46.0
6061-0	50.1	45.7	43.9	44.9

#### Extruded Solid Shapes

Factor	6063 T-5	6063 T-6
6-8	49.7-44.2	51.1-54.8
12-14	42.7-44.2	52.0-56.5
24-28	43.2-44.7	62.8-67.5
36-38	46.7-49.2	86.9-90.5

#### Screw Machine Stock—2011-T-3

Size"	1/4	3/16	5/16	11/16-13/16
Price	62.0	61.2	59.7	57.3

#### Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	\$1.411	\$1.884	\$2.353	\$2.823
.024 gage	1.762	2.349	2.937	3.524

#### MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

##### Sheet and Plate

Type→	Gage→	250	250-	.188	.081	.032
AZ31B Stand, Grade		67.9	69.0	77.9	108.1	
AZ31B Spec.		93.3	95.7	108.7	171.3	
Tread Plate		70.6	71.7			
Tooling Plate		73.0				

##### Extruded Shapes

factor→	6-8	12-14	24-28	36-38
Comm. Grade. (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade. (AZ31B)	84.6	85.7	90.6	104.2

##### Alloy Ingot

AZ91B (Die Casting) 37.25 (delivered)

AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

#### NICKEL, MONEL, INCONEL

(Base prices f.o.b. mill)

"A" Nickel Monel Inconel

Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Shot, blocks	...	87	...

#### COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	52.18	.....	49.36	52.32
Brass, Yellow	45.57	46.11	45.51	48.48
Brass, Low	48.28	48.77	48.17	51.04
Brass, R L	49.17	49.71	49.11	51.98
Brass, Naval	49.74	.....	44.05	52.90
Muntz Metal	47.66	.....	43.66	.....
Comm. Br.	50.65	51.19	50.59	53.21
Mang. Br.	53.44	.....	47.64	.....
Phos. Br. 8%	71.00	.....	71.55	.....

Free Cutting Brass Rod..... 29.28

#### TITANIUM

(Base prices, f.o.b. mill)

Sheet and strip, commercially pure, \$8.50-\$10.10; alloy, \$15.95; Plate, HR, commercially pure, \$6.00-\$6.75; alloy, \$8.75-\$9.50. Wire, rolled and/or drawn, commercially pure, \$6.50-\$7.00; alloy, \$10.00-\$11.50; Bar, HR or forged, commercially pure, \$5.10-\$5.80; alloy, \$5.10-\$5.35; billets, HR, commercially pure, \$3.80-\$4.35; alloy, \$3.80-\$4.20.

#### PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex. 23.50  
Beryllium aluminum 5% Be, Dollar per lb contained Be..... \$74.75  
Beryllium copper, per lb cont'd Be..... \$43.00  
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading..... \$71.50  
Bismuth, ton lots..... \$2.25  
Cadmium, del'd..... \$1.45  
Calcium, 99.9% small lots..... \$4.55  
Chromium, 98.8% metallic basis..... \$1.31  
Cobalt, 97-99% (per lb)..... \$2.00 to \$2.07  
Germanium, per gm, f.o.b. Miami, Okla., refined..... \$35.00 to \$42.00  
Gold, U. S. Treas., per troy oz..... \$35.00  
Indium, 99.9%, dollars per troy oz. \$2.25  
Iridium, dollars per troy oz. \$70 to \$80  
Lithium, 98%..... \$11.00 to \$14.00  
Magnesium, sticks, 100 to 500 lb..... \$5.00  
Mercury, dollars per 76-lb flask, f.o.b. New York..... \$228 to \$230  
Nickel oxide sinter at Buffalo, N. Y., or other U. S. points of entry, contained nickel..... \$6.60  
Paladium, dollars per troy oz. \$15 to \$17  
Platinum, dollars per troy oz. \$52 to \$55  
Rhodium..... \$120.00 to \$125.00  
Silver Ingots (¢ per troy oz.)..... \$9.125  
Thorium, per kg..... \$43.00  
Vanadium sponge..... \$3.45  
Zirconium sponge..... \$5.00

#### REMETAL METALS

##### Brass Ingot

(Cents per lb delivered, carloads)

85-5 Ingot	29.00
No. 115	25.25
No. 120	25.25
No. 123	27.00
80-10-10 Ingot	33.25
No. 205	31.25
No. 315	32.75
85-10-2 Ingot	40.25
No. 210	36.00
No. 215	32.75
Yellow Ingot	24.00
No. 405	25.75

Manganese bronze

No. 421..... 25.75

##### Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-aluminum alloys  
0.30 copper max..... 24.75-25.00  
0.60 copper max..... 24.50-24.75  
Piston alloys (No. 122 type)..... 24.25-25.25  
No. 12 alum. (No. 2 grade)..... 21.50-22.00  
108 alloy..... 22.00-22.50  
195 alloy..... 25.00-26.00  
13 alloy (0.60 copper max.)..... 24.25-24.75  
AXS-679 (1 pct zinc)..... 31.75-22.25

#### Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-97½% ..... 22.50-23.50  
Grade 2—93-95% ..... 21.25-22.25  
Grade 3—90-92% ..... 20.25-21.25  
Grade 4—85-90% ..... 17.50-18.50

#### SCRAP METALS

##### Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

Heavy	Turnings
Copper	23½ 22½
Yellow brass	18 15½
Red brass	20 20
Comm. bronze	21 20½
Mang. bronze	16½ 15½
Yellow brass rod ends	16½

##### Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	25½
No. 2 copper wire	24
Light copper	22
No. 1 composition	20½
No. 1 comp. turnings	20
Hvy. yellow brass solids	15
Brass pipe	17
Radiators	17

##### Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	25½
No. 2 copper wire	24
Light copper	22
No. 1 composition	20½
No. 1 comp. turnings	20
Hvy. yellow brass solids	15
Brass pipe	17
Radiators	17

##### Aluminum

Mixed old cast	13
Mixed new clips	16
Mixed turnings, dry	14

##### Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass	
No. 1 copper wire	23
No. 2 copper wire	21
Light copper	19
Auto radiators (unsweated)	13½
No. 1 composition	17
No. 1 composition turnings	16
Cocks and faucets	14
Clean heavy yellow brass	12½
Brass pipe	14
New soft brass clippings	14½
No. 1 brass rod turnings	12

##### Aluminum

Alum. pistons and struts	6
Aluminum crankcases	10
1100 (2S) aluminum clippings	13
Old sheet and utensils	10
Borings and turnings	7
Industrial castings	10
2020 (24S) clippings	11½

##### Zinc

New zinc clippings	4½
Old Zinc	3½
Zinc routings	2½
Old die cast scrap	2½

##### Nickel and Monel

Pure nickel clippings	52-54
Clean nickel turnings	37-40
Nickel anodes	53-54
Nickel rod ends	53-54
New Monel clippings	30-32
Clean Monel turnings	30-32
Old sheet Monel	26-28
Nickel silver clippings, mixed	18
Nickel silver turnings, mixed	15

##### Lead

Soft scrap lead	8
Battery plates (dry)	2½
Batteries, acid free	2½

##### Miscellaneous

Block tin	75
No. 1 pewter	59
Auto babbitt	39
Mixer common babbitt	9½
Solder joints	13½
Siphon tops	42
Small foundry type	10½
Monotype	10½
Lino. and stereotype	9½
Electrotype	8½
Hand picked type shells	7
Lino. and stereo. dress	2½
Electro dress	2½

(Effective Nov. 21, 1958)

IRON AGE		Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.													
STEEL PRICES		BILLETS, BLOOMS, SLABS			PIL-ING	SHAPES STRUCTURALS			STRIP						
EAST	Bethlehem, Pa.	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled	
	Buffalo, N. Y.	\$80.00 R3, B3	\$99.50 R3, B3	\$119.00 R3, B3	6.50 B3	5.55 B3	8.10 B3	5.55 B5	5.10 B3, R3	7.425 S10, R7	7.575 B3				
	Phila., Pa.									7.875 P15					
	Harrison, N. J.														
	Coatesville, Pa.								5.15 A2		7.575 A2				
	New Bedford, Mass.									7.875 R6					
	Johnstown, Pa.	\$80.00 B3	\$99.50 B3	\$119.00 B3		5.55 B3	8.10 B3								
	Boston, Mass.									7.975 T8					
	New Haven, Conn.									7.875 D1					
	Baltimore, Md.									7.425 T8					
	Phoenixville, Pa.					5.55 P2		5.55 P2							
	Sparrows Pt., Md.								5.10 B3		7.575 B3				
	New Britain, Bridgeport, Wallingford, Conn.				\$119.00 N8					7.875 W1, S7					
	Pawtucket, R. I. Worcester, Mass.									7.975 N7, A5					
MIDDLE WEST	Alton, Ill.								5.30 L1						
	Ashland, Ky.								5.10 A7		7.575 A7				
	Canton-Massillon, Dover, Ohio				\$102.00 R3	\$119.00 R3, \$14.00 T5				7.425 G6		10.80 G6		15.50 C11	
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	\$80.00 U1, R3	\$99.50 U1, R3, W8	\$119.00 U1, R3, W8	6.50 U1	5.50 U1, W8, P13	8.05 U1, Y1, W8	5.50 U1	5.10 W8, N4, A1	7.525 A1, T8, M8	7.575 W8		8.40 W8, S9, I3	15.55 A1, S9, G1, T8	
	Cleveland, Ohio									7.425 A5, J3		10.75 A5	8.40 J3		
	Detroit, Mich.				\$119.00 R5				5.10 G3, M2	7.425 M2, S1, D1, P11	7.575 G3	10.80 S1			
	Anderson, Ind.									7.425 G4					
	Gary, Ind. Harbor, Indiana	\$80.00 U1	\$99.50 U1	\$119.00 U1, Y1		5.50 U1, I3	8.05 U1, J3	5.50 I3	5.10 U1, I3, Y1	7.425 Y1	7.575 U1, I3, Y1	10.90 Y1	8.40 U1, Y1		
	Sterling, Ill.	\$80.00 N4				5.50 N4			5.20 N4						
	Indianapolis, Ind.									7.575 R5				15.70 R5	
	Newport, Ky.								5.10 A9				8.40 A9		
	Niles, Warren, Ohio Sharon, Pa.	\$99.50 S1, C10	\$119.00 C10, S1						5.10 R3, S1	7.425 R3, T4, S1	7.575 R3, S1	10.80 R3, S1	8.40 S1	15.55 S1	
	Owensboro, Ky.	\$80.00 G5	\$99.50 G5	\$119.00 G5											
WEST	Pittsburgh, Midland, Butler, Aliquippa, McKeesport, Pa.	\$80.00 U1, P6	\$99.50 U1, C11, P6	\$119.00 U1, C11, B7	6.50 U1	5.50 U1, J3	8.05 U1, J3	5.50 U1	5.10 P6	7.425 J3, B4, T3, S3			8.40 S9	15.55 S9	
	Weirton, Wheeling, Follansbee, W. Va.					6.50 U1, W3	5.50 W3		5.50 W3	5.10 W3	7.425 F3	7.575 W3	10.80 W3		
	Youngstown, Ohio	\$80.00 R3	\$99.50 Y1, C10	\$119.00 Y1				8.05 Y1	5.10 U	7.425 Y1, R5	7.575 U1, Y1	10.95 Y1	8.40 U1, Y1	15.55 R5, Y1	
	Fontana, Cal.	\$90.50 K1	\$109.00 K1	\$140.00 K1		6.30 K1	8.85 K1	6.45 K1	5.825 K1	9.20 K1					
	Geneva, Utah					5.50 C7	8.05 C7								
	Kansas City, Mo.					5.60 S2	8.15 S2						8.65 S2		
	Los Angeles, Torrance, Cal.				\$109.00 B2	\$139.00 B2		6.20 C7, B2	8.75 B2	5.85 C7, B2	9.30 C1, R5		8.68 B2	17.75 J3	
	Minnequa, Colo.					5.80 C6				6.20 C6	9.375 C6				
	Portland, Ore.					6.25 O2									
	San Francisco, Niles, Pittsburg, Cal.				\$109.00 B2			6.15 B2	8.70 B2	5.85 C7, B2					
	Seattle, Wash.				\$113.00 B2			6.25 B2	8.80 B2	6.10 B2					
	Atlanta, Ga.					5.78 A8			5.10 A8						
	Fairfield, Ala. City, Birmingham, Ala.	\$80.00 T2	\$99.50 T2			5.50 T2, R3, C16	8.05 T2		5.10 T2, R3, C16		7.575 T2				
	Houston, Lone Star, Texas				\$104.50 S2	\$124.00 S2		5.60 S2	8.15 S2				8.65 S2		

(Effective Nov. 21, 1958)

THE IRON AGE, November 27, 1958

IRON AGE <b>STEEL PRICES</b>		Sheets								Wire Rod	Tinplate†		
		Hot-rolled 18 ga. & hvr.	Cold- rolled	Galvanized (Hot-dipped)	Enamel- ing	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* 1.25 lb. base box	Electro** 0.25 lb. base box	Holloware Enameling 29 ga.
EAST	Buffalo, N. Y.	5.10 B3	6.275 B3				7.525 B3	9.275 B3		6.40 W6	† Special coated mfg. terms deduct 50¢ from 1.25-lb. coke base box price. Can-making quality BLACKPLATE \$5 to 128 lb. deduct \$2.26 from 1.25 lb. coke base box.		
	Claymont, Del.										* COKES: 1.50-lb. add 25¢.		
	Coatesville, Pa.										** ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add \$1.00. Differential 1.00 lb. 0.25 lb. add 65¢.		
	Conshohocken, Pa.	5.15 A2	6.325 A2				7.575 A2						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.40 B3			
	Fairless, Pa.	5.15 UI	6.325 UI				7.575 UI	9.275 UI			\$10.50 UI	39.20 UI	
	New Haven, Conn.												
	Phoenixville, Pa.												
MIDDLE WEST	Sparrows Pt., Md.	5.10 B3	6.275 B3	6.875 B3			7.525 B3	9.275 B3	10.025 B3	6.50 B3	\$10.40 B3	39.10 B3	
	Worcester, Mass.									6.70 A5			
	Trenton, N. J.												
	Alton, Ill.									6.60 L1			
	Ashland, Ky.	5.10 A7		6.875 A7	6.775 A7		7.525 A7						
	Canton-Massillon, Dover, Ohio			6.875 RI, R3									
	Chicago, Joliet, Ill.	5.10 W8, A1					7.525 UI, W8			6.40 A5, R3,W8			
	Sterling, Ill.									6.50 N4, K2			
	Cleveland, Ohio	5.10 R3, J3	6.275 R3, J3	7.65 R3*	6.775 R3		7.525 R3, J3	9.275 R3, J3		6.40 A5			
	Detroit, Mich.	5.10 G3, M2	6.275 G3, M2				7.525 G3	9.275 G3					
WEST	Newport, Ky.	5.10 A1	6.275 A1										
	Gary, Ind. Harbor, Indiana	5.10 UI, J3, Y1	6.275 UI, J3, Y1	6.875 UI, J3	6.775 UI, J3, Y1	7.225 UI	7.525 UI, Y1, J3	9.275 UI, Y1		6.40 Y1	\$10.40 UI, Y1	\$9.10 W3, UI, Y1	7.85 UI, Y1
	Granite City, Ill.	5.20 G2	6.375 G2	6.975 G2	6.875 G2							\$9.20 G2	7.95 G2
	Kokomo, Ind.			6.975 C9						6.50 C9			
	Mansfield, Ohio	5.10 E2	6.275 E2			7.225 E2							
	Middletown, Ohio		6.275 A7	6.875 A7	6.775 A7	7.225 A7							
	Niles, Warren, Ohio Sharon, Pa.	5.10 R3, SI	6.275 R3	6.875 R3 7.65 R3*	6.775 SI	7.225 SI*, R3	7.525 R3, SI	9.275 R3, SI				\$9.10 R3	
	Pittsburgh, Midland, Butler, Donora, Aliquippa, McKeesport, Pa.	5.10 UI, J3, P6	6.275 UI, J3, P6	6.875 UI, J3, P6 7.50 E3*	6.775 UI		7.525 UI, J3	9.275 UI, J3	10.025 UI, J3	6.40 A5, J3, P6	\$10.40 W5, J3	\$9.10 UI, J3	7.85 UI, J3
	Portsmouth, Ohio	5.10 P7	6.275 P7							6.40 P7			
	Wairton, Wheeling, Follansbee, W. Va.	5.10 W3, W5	6.275 W3, F3, W5 7.50 W3*	6.875 W3, F3, W5 7.50 W3*	6.775 W3	7.225 W3, W3	7.525 W3	9.275 W3			\$10.40 W5, W3	\$9.10 W5, W3	7.85 W5
SOUTH	Youngstown, Ohio	5.10 UI, Y1	6.275 Y1	7.50 J3*	6.775 Y1		7.525 Y1	9.275 Y1		6.40 Y1			
	Fontana, Cal.	5.825 K1	7.40 K1				8.25 K1	10.40 K1			\$11.05 K1	\$9.75 K1	
	Geneva, Utah	5.20 C7											
	Kansas City, Mo.									6.65 S2			
	Los Angeles, Torrance, Cal.									7.20 B2			
	Minneapolis, Colo.									6.65 C6			
SOUTH	San Francisco, Niles, Pittsburg, Cal.	5.80 C7	7.225 C7	7.625 C7						7.20 C7	\$11.05 C7	\$9.75 C7	
	Atlanta, Ga.												
	Fairfield, Ala. Alabama City, Ala.	5.10 T2, R3	6.275 T2, R3	6.875 T2, R3	6.775 T2					6.40 T2, R3	\$10.50 T2	\$9.20 T2	
	Houston, Texas									6.65 S2			

\* Electrogalvanized sheets.

(Effective Nov. 21, 1958)

\*7.425 at Sharon-Niles is 7.225

IRON AGE		Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.										
STEEL PRICES		BARS					PLATES				WIRE	
		Carbon Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				6.725 B3	9.025 B3	8.30 B3					
	Buffalo, N. Y.	5.675 R3,B3	5.675 R3,B3	7.70 B3	6.725 B3,R3	9.025 B3,B3	8.30 B3	5.30 B3				8.00 W6
	Claymont, Del.							5.30 C4		7.50 C4	7.95 C4	
	Coatesville, Pa.							5.30 L4		7.50 L4	7.95 L4	
	Conshohocken, Pa.							5.30 A2	6.375 A2	7.50 A2	7.95 A2	
	Harrisburg, Pa.							5.30 P2	6.475 P2			
	Milton, Pa.	5.825 M7	5.825 M7									
	Hartford, Conn.			8.15 R3		9.325 R3						
	Johnstown, Pa.	5.675 B3	5.675 B3		6.725 B3		8.30 B3	5.30 B3		7.50 B3	7.95 B3	8.00 B3
	Fairless, Pa.	5.825 U1	5.825 U1		6.875 U1							
	Newark, Camden, N. J.			8.10 W10, P10		9.20 W10, P10						
	Bridgeport, Putnam, Willimantic, Conn.			8.20 W10, 8.15 J3	6.80 N8	9.175 N8						
	Sparrows Pt., Md.		5.675 B3					5.30 B3		7.50 B3	7.95 B3	8.10 B3
	Palmer, Worcester, Readville, Mansfield, Mass.			8.20 B5, C14		9.325 A5,B5						8.30 A5, W6
	Spring City, Pa.			8.10 K4		9.20 K4						
	Alton, Ill.	5.875 L1										8.20 L1
	Ashland, Newport, Ky.							5.30 A7,A9		7.50 A9	7.95 A7	
	Canton, Massillon, Mansfield, Ohio	6.15* R3		7.65 R3,R2	6.725 R3, 6.475 T5	9.025 R3,R2, 8.775 T5		5.30 E2				
MIDDLE WEST	Chicago, Joliet, Waukegan, Madison, Harvey, Ill.	5.675 U1,R3, W8,N4,P13	5.675 U1,R3, N4,P13,W8 5.875 L1	7.65 A5, W10,W8, B5,L2,N9	6.725 U1,R3, W8	9.025 A5, W10,W8, L2,N9,B5	8.30 U1,W8, R3	5.30 U1,A1, W8,I3	6.375 U1	7.50 U1, W8	7.95 U1, W8	8.00 A5,R3, W8,N4, K2,W7
	Cleveland, Ohio Elyria, Ohio	5.675 R3	5.675 R3	7.65 A5,C13, C18		9.025 A5, C13,C18	8.30 R3	5.30 R3,J3	6.375 J3		7.95 R3,J3	8.00 A5, C13,C18
	Detroit, Mich.	5.675 G3	5.675 G3	7.90 P3, 7.85 PB, B5 7.65 R5	6.725 R5,G3	9.025 R5, 9.225 B5,P3, P8	8.30 G3	5.30 G3		7.50 G3	7.95 G3	
	Duluth, Minn.											8.00 A5
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.675 U1,I3, Y1	5.675 U1,I3, Y1	7.65 R3,J3	6.725 U1,I3, Y1	9.025 R3,M4	8.30 U1,Y1	5.30 U1,I3, Y1	6.375 J3, II	7.50 U1, Y1	7.95 U1, Y1,I3	8.10 M4
	Granite City, Ill.							5.40 G2				
	Kokomo, Ind.		5.775 C9					5.30 N4				8.10 C9
	Sterling, Ill.	5.775 N4	5.775 N4		7.65 C10	6.725 C10	9.025 C10		5.30 R3,SI		7.50 SI	7.95 R3, SI
	Niles, Warren, Ohio Sharon, Pa.											8.10 K2
	Owensboro, Ky.	5.675 G5			6.725 G5							
	Pittsburgh, Midland, Donera, Aliquippa, Pa.	5.675 U1,J3	5.675 U1,J3	7.65 A5,B4, R3,J3,C11, W10,S9,C8, M9	6.725 U1,J3, C11,B7	9.025 A5, W10,R3,S9, C11,C8,M9	8.30 U1,J3	5.30 U1,J3	6.375 U1,J3	7.50 U1, J3,B7	7.95 U1, J3,B7	8.00 A5, J3,P6
	Portsmouth, Ohio											8.00 P7
	Weirton, Wheeling, Follansbee, W. Va.							5.30 W5				
	Youngstown, Ohio	5.675 U1,R3, Y1	5.675 U1,R3, Y1	7.65 A1,Y1, F2	6.725 U1,Y1	9.025 Y1,F2	8.30 U1,Y1	5.30 U1, R3, Y1		7.50 Y1	7.95 U1, Y1	8.00 Y1
WEST	Emeryville, Cal. Fontana, Cal.	6.425 J5 6.375 K1	6.425 J5 6.375 K1		7.775 K1		9.00 K1	6.10 K1		8.30 K1	8.75 K1	
	Geneva, Utah							5.30 C7			7.95 C7	
	Kansas City, Mo.	5.925 S2	5.925 S2		6.975 S2		8.55 S2					8.25 S2
	Los Angeles, Torrance, Cal.	6.375 C7,B2	6.375 C7,B2	9.10 R3,P14, S12	7.775 B2	11.00 P14, S12	8.625 B2					8.95 B2
	Minneapolis, Colo.	6.125 C6	6.125 C6					6.15 C6				8.25 C6
	Portland, Ore.	6.425 O2	6.425 O2									
	San Francisco, Niles, Pittsburgh, Cal.	6.375 C7 6.425 B2					8.675 B2					8.95 C7,C6
	Seattle, Wash.	6.425 B2,N6	6.425 B2				8.675 B2	6.20 B2		8.40 B2	8.85 B2	
	Atlanta, Ga.	5.675 A8	5.675 A8									8.00 A8
	Fairfield City, Ala. Birmingham, Ala.	5.675 T2,R3, C16	5.675 T2,R3, C16	8.25 C16			8.30 T2	5.30 T2,R3			7.95 T2	8.00 T2,R3
SOUTH	Houston, Ft. Worth, Lone Star, Texas	5.925 S2	5.925 S2		6.975 S2		8.55 S2	5.40 S2		7.60 S2	8.05 S2	8.25 S2

\* Merchant Quality—Special Quality 35¢ higher.

(Effective Nov. 21, 1958)

\* Special Quality.

THE IRON AGE, November 27, 1958

## STEEL PRICES

### Key to Steel Producers

#### With Principal Offices

A1	Acme Steel Co., Chicago
A2	Alan Wood Steel Co., Conshohocken, Pa.
A3	Allegheny Ludlum Steel Corp., Pittsburgh
A4	American Cladmetals Co., Carnegie, Pa.
A5	American Steel & Wire Div., Cleveland
A6	Angel Nail & Chaplet Co., Cleveland
A7	Arco Steel Corp., Middleburg, Ohio
A8	Atlantic Steel Co., Atlanta, Ga.
A9	Acme-Newsport Steel Co., Newport, Ky.
B1	Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2	Bethlehem Pacific Coast Steel Corp., San Francisco
B3	Bethlehem Steel Co., Bethlehem, Pa.
B4	Blair Strip Steel Co., New Castle, Pa.
B5	Bliss & Laughlin, Inc., Harvey, Ill.
B6	Brock Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7	A. M. Byers, Pittsburgh
B8	Braeburn Alloy Steel Corp., Braeburn, Pa.
C1	Calstrip Steel Corp., Los Angeles
C2	Carpenter Steel Co., Reading, Pa.
C4	Claymont Products Dept., Claymont, Del.
C6	Colorado Fuel & Iron Corp., Denver
C7	Columbia Geneva Steel Div., San Francisco
C8	Columbia Steel & Shafing Co., Pittsburgh
C9	Continental Steel Corp., Kokomo, Ind.
C10	Copperweld Steel Co., Pittsburgh, Pa.
C11	Crucible Steel Co. of America, Pittsburgh
C13	Cuyahoga Steel & Wire Co., Cleveland
C14	Compressed Steel Shafing Co., Readville, Mass.
C15	G. O. Carlson, Inc., Thorndale, Pa.
C16	Connors Steel Div., Birmingham
C18	Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.
D1	Detroit Steel Corp., Detroit
D3	Driver Harris Co., Harrison, N. J.
D4	Dickson Weatherproof Nail Co., Evanston, Ill.
E1	Eastern Stainless Steel Corp., Baltimore
E2	Empire-Reeves Steel Corp., Mansfield, O.
E3	Enamel Products & Plating Co., McKeesport, Pa.
F1	Firth Sterling, Inc., McKeesport, Pa.
F2	Fitzsimons Steel Corp., Youngstown
F3	Follansbee Steel Corp., Follansbee, W. Va.

G2	Granite City Steel Co., Granite City, Ill.
G3	Great Lakes Steel Corp., Detroit
G4	Greer Steel Co., Dover, O.
G5	Green River Steel Corp., Owenboro, Ky.
H1	Hanna Furnace Corp., Detroit
I2	Ingersoll Steel Div., Chicago
J3	Inland Steel Co., Chicago
J4	Interlake Iron Corp., Cleveland
J1	Jackson Iron & Steel Co., Jackson, O.
J2	Jesup Steel Corp., Washington, Pa.
J3	Jones & Laughlin Steel Corp., Pittsburgh
J4	Joslyn Mfg. & Supply Co., Chicago
J5	Judson Steel Corp., Emeryville, Calif.
K1	Kaiser Steel Corp., Fontana, Calif.
K2	Keystone Steel & Wire Co., Peoria
K3	Koppers Co., Granite City, Ill.
K4	Keystone Drawn Steel Co., Spring City, Pa.
L1	Laclede Steel Co., St. Louis
L2	La Salle Steel Co., Chicago
L3	Lone Star Steel Co., Dallas
L4	Lukens Steel Co., Coatesville, Pa.
M1	Mahoning Valley Steel Co., Niles, O.
M2	McLouth Steel Corp., Detroit
M3	Mercer Tube & Mfg. Co., Sharon, Pa.
M4	Mid States Steel & Wire Co., Crawfordsville, Ind.
M6	Mystic Iron Works, Everett, Mass.
M7	Milton Steel Products Div., Milton, Pa.
M8	Mill Strip Products Co., Evanston, Ill.
M9	Moltrup Steel Products Co., Beaver Falls, Pa.
N1	National Supply Co., Pittsburgh
N2	National Tube Div., Pittsburgh
N4	Northwestern Steel & Wire Co., Sterling, Ill.
N6	Northwest Steel Rolling Mills, Seattle
N7	Newman Crosby Steel Co., Pawtucket, R. I.
N8	Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9	Nelson Steel & Wire Co.
O1	Oliver Iron & Steel Co., Pittsburgh
O2	Oregon Steel Mills, Portland
P1	Page Steel & Wire Div., Monessen, Pa.
P2	Phoenix Iron & Steel Co., Phoenixville, Pa.
P3	Pilgrim Drawn Steel Div., Plymouth, Mich.
P4	Pittsburgh Coke & Chemical Co., Pittsburgh
P5	Pittsburgh Screw & Bolt Co., Pittsburgh
P6	Pittsburgh Steel Co., Pittsburgh
P7	Portsmouth Div., Detroit Steel Corp., Detroit
P8	Plymouth Steel Co., Detroit
P9	Pacific States Steel Co., Niles, Cal.
P10	Precision Drawn Steel Co., Camden, N. J.
P11	Production Steel Strip Corp., Detroit
P13	Phoenix Mfg. Co., Joliet, Ill.
P14	Pacific Tube Co.
P15	Philadelphia Steel and Wire Corp.
R2	Reliance Div., Eaton Mfg. Co., Massillon, O.
R3	Republic Steel Corp., Cleveland
R4	Roebling Sons Co., John A., Trenton, N. J.
R5	Jones & Laughlin Steel Corp., Stainless and Strip Div.
R6	Rodney Metals, Inc., New Bedford, Mass.
R7	Rome Strip Steel Co., Rome, N. Y.
S1	Sharon Steel Corp., Sharon, Pa.
S2	Sheffield Steel Div., Kansas City
S3	Shenango Furnace Co., Pittsburgh
S4	Simonds Saw and Steel Co., Fitchburg, Mass.
S5	Sweet's Steel Co., Williamsport, Pa.
S7	Stanley Works, New Britain, Conn.
S8	Superior Drawn Steel Co., Monaca, Pa.
S9	Superior Steel Div. of Copperweld Steel Co., Carnegie, Pa.
S10	Seneca Steel Service, Buffalo
S11	Southern Electric Steel Co., Birmingham
S12	Sierra Drawn Steel Corp., Los Angeles, Calif.
T1	Tonawanda Iron Div., N. Tonawanda, N. Y.
T2	Tennessee Coal & Iron Div., Fairfield
T3	Tennessee Products & Chem. Corp., Nashville
T4	Thomas Strip Div., Warren, O.
T5	Timken Steel & Tube Div., Canton, O.
T7	Texas Steel Co., Fort Worth
T8	Thompson Wire Co., Boston
U1	United States Steel Corp., Pittsburgh
U2	Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3	Ulbrich Stainless Steels, Wallingford, Conn.
U4	U. S. Pipe & Foundry Co., Birmingham
W1	Wallingford Steel Co., Wallingford, Conn.
W2	Washington Steel Corp., Washington, Pa.
W3	Weirton Steel Co., Weirton, W. Va.
W4	Wheatland Tube Co., Wheatland, Pa.
W5	Wheeling Steel Corp., Wheeling, W. Va.
W6	Wickwire Spencer Steel Div., Buffalo
W7	Wilson Steel & Wire Co., Chicago
W8	Wisconsin Steel Div., S. Chicago, Ill.
W9	Woodward Iron Co., Woodward, Ala.
W10	Wyckoff Steel Co., Pittsburgh
W12	Wallace Barnes Steel Div., Bristol, Conn.
Y1	Youngstown Sheet & Tube Co., Youngstown, O.

#### PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about \$200 per net ton.

STANDARD T. & C.	BUTTWELD												SEAMLESS												
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	
Sparrows Pt. B3	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.25	*4.75	10.25	*4.25	11.75	*4.50											
Youngstown R3	*10.75	*26.00	*7.75	*22.00	*4.25	*17.50	*1.75	*6.75	*1.25	*15.75	*0.75	*15.25	0.75	*15.50											
Fontana K1	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50			
Pittsburgh J3	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50											
Alton, Ill. L1	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50											
Sharon M3	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50											
Fairless N2	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50											
Pittsburgh N1	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50			
Wheeling W5	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50											
Wheatland W4	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50											
Youngstown Y1	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50			
Indiana Harbor Y1	1.25	*14.0	4.25	*10.0	7.75	*5.50	10.25	*4.75	10.75	*3.75	11.25	*3.25	12.75	*3.50											
Lorain N2	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50			
EXTRA STRONG PLAIN ENDS																									
Sparrows Pt. B3	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50											
Youngstown R3	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50											
Fairless N2	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50											
Fontana K1	*6.25	*2.25			0.75		1.25		1.75		2.25		2.75												
Pittsburgh J3	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*9.75	*16.50	4.25	*11.50			
Alton, Ill. L1	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50											
Sharon M3	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*9.75	*16.50	4.25	*11.50			
Pittsburgh N1	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*9.75	*16.50	4.25	*11.50			
Wheeling W5	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50											
Wheatland W4	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50											
Youngstown Y1	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*9.75	*16.50	4.25	*11.50			
Indiana Harbor Y1	5.75	*8.0	9.75	*4.0	12.75	0.50	13.25	*0.75	13.75	0.25	14.25	0.75	14.75	*0.50											
Lorain N2	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*9.75	*16.50	4.25	*11.50			

Threads only, butt-weld and seamless, 2 1/2 pt. higher discount. Plain ends, butt-weld and seamless, 3-in. and under, 5 1/2 pt. higher discount. Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: 1/2, 3/4 and 1-in., 2 pt.; 1 1/2, 2-in. and 3-in., 2 1/2 pt.; zinc price range of over 13¢ to 15¢ would lower discounts on 2 1/2 and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 11.50¢ per lb.

(Effective Nov. 21, 1958)

To identify producers, see Key on preceding page

## TOOL STEEL

F.o.b. mill						SAE
W	Cr	V	Mo	Co	per lb	
18	4	1	—	—	\$1.84	T-1
18	4	1	—	5	2.545	T-4
18	4	2	—	—	2.005	T-2
1.5	4	1.5	8	—	1.20	M-1
6	4	3	6	—	1.59	M-3
6	4	3	5	—	1.345	M-2
High-carbon chromium					.955	D-3, D-5
Oil hardened manganese					.505	O-2
Special carbon					.38	W-1
Extra carbon					.38	W-1
Regular carbon					.325	W-1
Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.						

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

## CLAD STEEL

Base prices, cents per lb f.o.b.						
Stainless Type	Plate (L4, C4, A3, J2)			Sheet (12)		
	Cladding	10 pct	15 pct	20 pct	28 pct	37.50
302						37.50
304		26.80	31.55	34.30	40.00	
316		42.20	46.25	50.25	58.75	
321		34.50	37.75	41.05	47.25	
347		40.80	44.65	48.55	57.00	
405		24.60	26.90	29.25	—	
410		22.70	24.85	27.00	—	
430		23.45	25.65	27.90	—	

CR Strip (S9) Copper, 10 pct, 2 sides, 38.75; 1 side, 33.10.

## RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Tie Plates	Track Bolts Unthreaded	GRAPHITE		CARBON <sup>a</sup>	
							Diam. (In.)	Length (In.)	Price	Diam. (In.)
Bessemer UI	5.75	6.725	7.25	—	—	15.35	24	84	26.00	40
Cleveland R3				10.10			29	25.25	35	110
Se. Chicago R3							18	25.75	30	110
Endley T2	5.75	6.725	6.725	10.10	6.875		14	25.75	24	72 to 84
Fairfield T2							12	26.25	20	99
Gary UI	5.75	6.50	—	—	6.875		10	28.00	17	72
Huntington C16							19	28.50	14	72
Ind. Harbor Y1				10.10			7	28.25	12	60
Johnstown B3							6	31.50	18	60
Joliet UI			7.25	—	—		4	35.00	8	60
Kansas City S2				10.10	15.35		3	37.00	—	13.00
Lackawanna B3	5.75	6.725	7.25	—	6.875		2 1/2	39.25	—	13.30
Lebanon B3							2	40	—	—
Minnesota C6	5.75	7.225	7.25	10.10	6.875					60.75
Pittsburgh P5										
Pittsburgh J3										
Seattle R2										
Steelton B3	5.75	7.25	6.725	—	6.875					
Struthers Y1				10.10	—					
Torrance C7										
Williamsport S5										
Youngstown R3				10.10	—					

## COKE

Furnace, beehive (f.o.b.)	Net-Ton
Connellsville, Pa.	\$14.50
Foundry, beehive (f.o.b.)	\$18.00 to \$18.50
Foundry oven coke	
Buffalo, del'd	\$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	25.50
Swedeland, Pa., f.o.b.	25.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Pa.	29.25

## LAKE SUPERIOR ORES

51.50% Fe natural content, delivered lower Lake ports. Prices for 1958 season. Freight charges for seller's account. Gross Ton	
Openhearth lump	\$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

## ELECTRICAL SHEETS

22-Gage	Hot-Rolled	Cold-Reduced (Coiled or Cut Length)	
		Semi- Processed	Fully Processed
F.o.b. Mill Cents Per Lb	(Cut Lengths)*		
Field		9.875	
Armature	11.70	11.20	11.70
Elect.	12.40	11.90	12.40
Special Motor		12.475	
Motor		13.05	13.55
Dynamo	14.45	14.15	14.65
Trans. 72	15.70	15.20	15.70
Trans. 65	16.30		

Trans. 58		Trans. 60	Trans. 70
Trans. 52		Trans. 72	Trans. 70
16.80		19.70	
17.65		20.20	
		Trans. 66	20.70

Producing points: Beech Bottom (W5); Brackenridge (A3); Granite City (G2); Indiana Harbor (I3); Manfield (E2); Newport, Ky. (A9); Niles, O. (S1); Vandergrift (U1); Warren, O. (R3); Zanesville, Butler (A7).

## ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE		CARBON <sup>a</sup>			
Diam. (In.)	Length (In.)	Price	Diam. (In.)	Length (In.)	Price
24	84	26.00	40	160, 110	10.70
29	72	25.25	35	110	10.70
18	72	25.75	30	110	10.85
14	72	25.75	24	72 to 84	11.25
12	72	26.25	20	99	11.00
10	60	28.00	17	72	11.40
19	48	28.50	14	72	11.85
7	60	28.25	12	60	12.95
6	60	31.50	18	60	13.00
4	40	35.00	8	60	13.30
3	40	37.00	—	—	—
2 1/2	30	39.25	—	—	—
2	24	60.75	—	—	—

\* Prices shown cover carbon nipples.

## REFRACTORIES

### Fire Clay Brick

Carloads per 1000	
Super duty, Mo., Pa., Md., Ky.	\$185.00
High duty (except Salina, Pa., add \$5.00)	140.00
Medium duty	125.00
Low duty (except Salina, Pa., add \$2.00)	103.00
Ground fire clay, net ton, bulk	22.50

### Silica Brick

Mt. Union, Pa., Ensley, Ala.	
Childs, Hays, Latrobe, Pa.	\$158.00
Chicago District	168.00
Western Utah	183.00
California	165.00
Super Duty	
Hays, Pa., Athens, Tex., Winkleville, Warren, O., Morrisville	163.00-168.00

Silica cement, net ton, bulk, Latrobe 29.75

Silica cement, net ton, bulk, Chicago 26.75

Silica cement, net ton, bulk, Ensley, Ala. 27.75

Silica cement, net ton, bulk, Mt. Union 25.75

Silica cement, net ton, bulk, Utah and Calif. 39.00

Silica cement, net ton, bulk, Calif. 39.00

Standard chemically bonded, Balt. \$109.00

Standard chemically bonded, Curtin, Calif. 119.00

Burned, Balt. 103.00

Standard chemically bonded, Balt. \$109.00

Chemically bonded, Balt. 119.00

In bulk 46.00

In sacks 52.00-54.00

Standard chemically bonded, Balt. \$109.00

Chemically bonded, Balt. 119.00

In bulk 46.00

In sacks 52.00-54.00

Standard chemically bonded, Balt. \$109.00

Chemically bonded, Balt. 119.00

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In sacks 52.00-54.00

Standard chemically bonded, Balt. \$109.00

Chemically bonded, Balt. 119.00

In bulk 46.00

In sacks 52.00-54.00

Standard chemically bonded, Balt. \$109.00



## PIG IRON

Dollars per gross ton, f.o.b.,  
subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Beas.	Low Phos.
Birdsboro, Pa. B6	68.00	68.50	69.00	69.50	.....
Birmingham R3	62.00	62.50*	66.50	.....	.....
Birmingham W9	62.00	62.50*	66.50	.....	.....
Birmingham U4	62.00	62.50*	66.50	.....	.....
Buffalo R3	66.00	66.50	67.00	67.50	.....
Buffalo H1	66.00	66.50	67.00	67.50	.....
Buffalo W6	66.00	66.50	67.00	67.50	.....
Chester P2	66.50	67.00	67.50	.....	.....
Chicago J4	66.00	66.50	66.50	67.00	.....
Cleveland A5	66.00	66.50	66.50	67.00	71.00†
Cleveland R3	66.00	66.50	66.50	67.00	.....
Duluth J4	66.00	66.50	66.50	67.00	71.00†
Erie J4	66.00	66.50	66.50	67.00	71.00†
Everett M6	67.50	68.00	68.50	.....	.....
Fontana K1	75.00	75.50	.....	.....	.....
Geneva, Utah C7	66.00	66.50	.....	.....	.....
Granite City G2	67.00	68.00	.....	.....	.....
Hubbard Y1	.....	68.40	68.90	.....	.....
Ironon, Utah C7	66.00	66.50	.....	.....	.....
Midland C11	66.00	66.50	67.00	.....	.....
Minneapolis C6	68.00	68.50	69.00	.....	.....
Monessen P6	66.00	.....	.....	.....	.....
Nerilie In. P4	66.00	66.50	67.00	71.00†	.....
N. Tonawanda T7	66.00	66.50	67.00	67.50	.....
Sharpen S3	66.00	66.50	67.00	.....	.....
Se. Chicago R3	66.00	66.50	67.00	.....	.....
Se. Chicago W8	66.00	66.50	67.00	.....	.....
Swedenborg A2	68.00	68.50	69.00	69.50	.....
Toledo J4	66.00	66.50	66.50	67.00	69.50
Troy, N. Y. R3	68.00	68.50	69.00	69.50	71.00†
Youngstown Y1	.....	66.50	.....	.....	.....

**DIFFERENTIALS:** Add .25¢ per ton for each .25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phosphorus, 1.75 to 2.00 pct); .5¢ per ton for each .25 pct manganese or portion thereof over 1 pct; \$2 per ton for .50 to 8.75 pct nickel, \$1 for each additional .25 pct nickel. Add \$1.00 for .31-0.60 pct phosphorus.

**Silvery Iron:** Buffalo (6 pct), H1, \$79.25; Jackson J1, 14 (Globe Div.), \$78.00; Niagara Falls (15.01-15.50), \$161.00; Keokuk (14.01-14.50), \$103.50; (15.51-16.00), \$186.50. Add \$1.00 per ton for each .50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add \$1.25 for each .50 pct manganese over 1.00 pct. **Bessemer silvery pig iron** (under .10 pct phosphorus); \$64.00. Add \$1.00 premium for all grades silvery to 18 pct.

\* Intermediate low phosphorus.

## STAINLESS STEEL

Base price cents per lb. f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	30.25	31.50	32.00	33.25	49.50	48.00	46.50	—	21.50	—	21.75	—
Billets, forging	—	34.50	37.25	38.00	41.00	46.50	62.25	47.00	55.75	28.25	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	33.75	33.75	34.25	34.25
Plates	39.25	40.00	41.25	42.25	45.00	45.75	71.75	54.75	64.75	30.00	30.00	31.25	31.00
Sheets	48.50	49.25	51.25	52.00	56.75	55.00	80.75	65.50	79.25	40.25	40.25	48.25	48.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	56.75	55.00	80.75	65.50	79.25	40.25	40.25	42.50	46.75
Wire CF; Rod HR	40.00	40.75	42.00	42.75	45.50	45.25	69.25	52.50	61.50	32.00	32.00	32.50	32.50

## STAINLESS STEEL PRODUCING POINTS:

**Sheets:** Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; Vandergrift, Pa., U1; Washington, Pa., W2, J2; Baltimore, El; Middletown, O., A7; Massillon, O., R3; Gary, U1; Bridgeville, Pa., U2; New Castle, Ind., I2; Detroit, M2; Louisville, O., R5.

**Strip:** Midland, Pa., C11; Waukegan, Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C7; Washington, Pa., W2; Leechburg, Pa., A3; Bridgeville, Pa., U2; Detroit, M2; Detroit, S1; Canton, Massillon, O., R3; Harrison, N. J., D1; Youngstown, R5; Sharon, Pa., S1; Butler, Pa., A7; Wallingford, Conn., U3 (plus further conversion extras); W1 (25¢ per lb. higher); New Bedford, Mass., R6; Gary, U1 (25¢ per lb. higher).

**Bar:** Baltimore, A7; S. Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1; F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; S. Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Canton, O., T5, R3; Ft. Wayne, J4; Detroit, R3; Gary, U1; Owensboro, Ky., G5; Bridgeport, Conn., N8.

**Structural:** Baltimore, A7; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, C11; S. Chicago, U1.

**Plates:** Baltimore, El; Brackenridge, Pa., A3; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., I2; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3; Coatesville, Pa., C15; Vandergrift, Pa., U1; Gary, U1.

**Forging billets:** Midland, Pa., C11; Baltimore, A7; Washington, Pa., J2; McKeesport, F1; Massillon, Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, U1; Syracuse, C11; Detroit, R5; Munhall, Pa., S. Chicago, U1; Owensboro, Ky., G5; Bridgeport, Conn., N8.

(Effective Nov. 21, 1958)



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## FERROALLOY PRICES

### Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd.	67-71% Cr, .30-1.00% max. Si	28.75	
0.02% C	41.00	0.50% C	38.00
0.05% C	39.00	1.00% C	37.75
0.10% C	38.50	1.50% C	37.50
0.20% C	38.25	2.00% C	37.25
4.00-4.50% C	60-70% Cr, 1-2% Si	28.75	
3.50-5.00% C	57-64% Cr, 2.00-4.50% Si	28.25	
0.025% C (Simplex)		36.75	
8% max C	50-55% Cr	6% max Si	25.75
4% max C	50-55% Cr	2% max Si	26.50

### High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule.

### Chromium Metal

Per lb chromium, contained, packed, delivered, ton lots, 97.25% min. Cr, 1% max. Fe.	\$1.29	
0.10% max. C	9 to 11% C, 88-91% Cr, 0.75% Fe.	1.38

### Electrolytic Chromium Metal

Per lb of metal 2" x D plate (1/8" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.	\$1.15
Carloads	1.17
Ton lots	1.17
Less ton lots	1.19

### Low Carbon Ferrochrome Silicon

(Cr 39-41%, Si 42-45%, C 0.05% max.)	
Carloads, delivered, lump, 3-in. x down, packed.	
Price is sum of contained Cr and contained Si.	
Cr	Si
Carloads, bulk	28.25
Ton lots	33.50
Less ton lots	35.10
	14.60
	16.05
	17.70

### Calcium-Silicon

Per lb of alloy, lump, delivered, packed. 30-33% Cr, 60-65% Si, 3.00 max. Fe.	
Carloads, bulk	24.00
Ton lots	27.95
Less ton lots	29.45

### Calcium-Manganese—Silicon

Cents per lb of alloy, lump, delivered, packed.	
16-20% Ca, 14-18% Mn, 53-59% Si.	
Carloads, bulk	23.00
Ton lots	26.15
Less ton lots	27.15

### SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe 1/2 in. x 12 mesh.	
Ton lots	21.15
Less ton lots	22.40

### V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5: 38-42% Cr, 17-19% Si, 8-11% Mn, packed.	
Carload lots	18.45
Ton lots	19.95
Less ton lots	21.20

### Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, SI 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Carload packed	19.20
Ton lots to carload packed	21.15
Less ton lots	22.40

### Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn.	Cents per-lb
Producing Point	
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.25
Johnstown, Pa.	12.25
Neville Island, Pa.	12.25
Sheridan, Pa.	12.25
Philo, Ohio	12.25
S. Duquesne	12.25

Add or subtract 0.1¢ for each 1 pct Mn above or below base content.	
Briquets, delivered, 66 pct Mn:	
Carloads, bulk	14.80
Ton lots packed in bags	17.20

### Spiegeleisen

Per gross ton, lump, f.o.b. Palmerton, Pa., and Neville Island, Pa.	
Manganese Silicon	
16 to 19% 3% max.	\$100.50
19 to 21% 3% max.	102.50
21 to 23% 3% max.	105.00

### Manganese Metal

2 in. x down, cents per pound of metal delivered.	
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.	
Carload, packed	45.75
Ton lots	47.25

### Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.	
Carloads	34.00
Ton lots	36.00
250 to 1999 lb	38.00
Premium for Hydrogen - removed metal	0.75

### Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn	
25.50	

### Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, packed, del'd Mn 85-90%	
Carloads Ton Less	
0.07% max. C, 0.06% (Bulk)	
9% Mn	37.15
0.07% max. C	35.10
0.10% max. C	34.35
0.15% max. C	33.60
0.30% max. C	32.10
0.50% max. C	31.60
0.75% max. C, 80.85%	28.60
5.0-7.0% Si	31.40
	32.60

### Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.	
Carloads bulk	12.80
Ton lots, packed	14.45
Carloads, bulk, delivered, per lb of briquet	15.10
Briquets, packed pallets, 3000 lb up to carloads	16.30

### Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$106.50 gross ton, freight allowed to normal trade area.	
Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$93.00.	

### Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.	
Ton lots, Carloads, 98.25% Si, 0.50% Fe.	24.95
98% Si, 1.0% Fe	24.45
	23.65

### Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.	
Carloads, bulk	8.00
Ton lots, packed	10.80

### Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.	
50% Si... 14.60	75% Si... 16.90
65% Si... 15.75	85% Si... 18.60
90% Si... 20.00	

### Ferrovanadium

50-55% V delivered, per pound, contained V, in any quantity.	
Openhearth	3.20
Crucible	3.30
High speed steel	3.40

### Calcium Metal

Eastern zone, cents per pound of metal, delivered.	
Cast	Turnings
Ton lots	\$2.05
100 to 1999 lb.	2.40

Turnings Distilled

Ton lots (packed) 2.35

Less ton lots (packed) 3.30

14.60

1.57

### Alsifer, 20% Al, 40% Si, 40% Fe, f.o.b. Suspension Bridge, N. Y.

per lb.	9.85¢
Ton lots	11.20¢

### Calcium molybdate, 43.6-46.6% f.o.b. Langloch, Pa., per pound contained Mo.

	\$1.50
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### Ferro-columbium, 50-60% lb, 2 in. x D, delivered per pound contained Cb.

Ton lots	\$3.90
Less ton lots	3.95

### Ferro-titanium-columbium, 20% Ta, 40% Cb, 30% C, del'd ton lots, 2-in. x D per lb can't Cb plus Ta

	\$3.40
--	--------

### Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langloch, Pa., per pound contained Mo.

	\$1.76
--	--------

### Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$5.00 unitage, per gross

Ton lots	\$120.00
10 tons to less carload	131.00

### Ferrortitanium, 40% regular grade

0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti	\$1.35
--------------------------------------------------------------------------------------------------------------	--------

### Ferrortitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, car lots, per lb contained Ti

	\$1.50
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### Ferrortitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, car lots, per net ton

	\$240.00
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### Ferrotungsten, 1/4 x down packed, per pounds contained W, ton lots delivered

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**REBUILT — GUARANTEED  
ELECTRICAL EQUIPMENT**

**MOTOR GENERATOR SETS**

Qu.	K.W.	Make	R.P.M.	D.C.	Volts	Volts
3"	3500	Al.Ch.	514	350/700	13,500/6900	4160/2400
1	2000	G.E.	450	132/265	4160/2400	4160/2400
2	2000	Whse.	720	600	13,800/6900	4160/2400
1	1250	G.E.	450	250	4160/2400	4160/2400
2	1000	Whse.	720	600	4160/2400	4160/2400
2	500	Whse.	1300	125/250	4000/2300	4000/2300
1	450	Whse.	800	280/300	2300	2300
3	300	Whse.	1300	125/250	4000/2300	4000/2300
1*	300	Al.Ch.	1200	250/200	2300	2300
2	200	Whse.	1300	125/250	2300	2300
1	150	Whse.	1300	250	2300	2300
1	150	G.E.	1200	250	4000/2300	4000/2300
2	150	Rel.	1200	125	2300	2300
*3 Unit Sets.						

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3***	3800	Whse.	Rev.	525/600	600
1**	2200	Whse.	Mill	600	92/132
8**	1500	Whse.	Rev.	525	600
1**	1250	Al.Ch.	Mill	600	300/600
2**	940	S.S.	Mill	600	800/1000
1**	700	Whse.	Mill	600	140
1**	700	Whse.	Mill	250	300/700
2**	645	S.S.	Mill	500	1800
1	600	Whse.	Mill	250	110/220
2	600	Al.Ch.	Mill	600	300/600
1	400	G.E.	M.P.C.	270	450
1	300	Whse.	Mill	230	300
2	275	Whse.	Q.M. 660-6	250	425/850
1	110	G.E.	C.D. 175-A	245	800/1025
1	125	Whse.	SK-148	250	575/850
1	125	Whse.	SK-196	250	450/1000
1	100	Rel.	441-T	250	1150/1500
1	100	Whse.	SK-183	250	450/1000
1	100	G.E.	CD-175	230	400/1200
1	80	Rel.	651-T	230	575/1150
1	80	El. Dry.	250	250	525/1000
1*	50/60	Whse.	SK-181	250	500/1500
1*	50	G.E.	CD-175	230	400/1200
2*	30/40	Whse.	SK-181	250	500/1500
*T.E.F.C. **Enclosed Forced Ventilated.					
**Two Motors in Tandem.					

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**THE CLEARING HOUSE**

# New York Market In Last Quarter Lull

Used machinery sales there have slumped off after an active early fall.

Dealers believe customers are unwilling to spend until 1958 profits are counted.

The New York area used and rebuilt machinery market appears to be in a year-end lull. Many dealers are concerned at the small number of orders and inquiries now coming in. Their concern is the greater since September was comparatively brisk, and inquiries seemed to indicate better business for fourth quarter.

Many dealers feel they are now witnessing what one of them terms "year-end conservatism." By this he means a tendency to hold on to cash until 1958 books are closed to make as good a showing as possible. Also buyers may wait until new budgets are drawn up before committing any major expenditures.

**A Short Wait** — A leading electrical machinery dealer mentions the case of one company as typical. The firm's engineers have promised the dealer a sizable order, but can not hold out much hope of concluding the sale until late December or January. The delay stems from unwillingness of the customer to part with the money "just yet." The dealer believes this is a common situation at present.

Other dealers say that inquiries are fair while final sales are at best sluggish. They repeat that demand is almost entirely for late-model machines; customers are just not interested in early models.

**Construction Active** — Fabricating equipment remains a bright spot. This reflects not only a continued high level of construction activity but also the high prices of new equipment. "It has to be price," opines one dealer. "New equipment deliveries are just as good as ours."

However, the picture is by no means one of unrelieved gloom. Business is still good enough to prevent panic, and the rising level of metalworking activity in the area is sure to mean better sales later on.

Subcontracting, always important in this area, has been rising for some time now, and dealers are convinced that many shops will find additional tools to fill orders and qualify for future orders. They point out that much of the subcontracting work is for aircraft plants and the Atomic Energy Commission, under ever-tightening standards. In addition high labor costs make the most productive machinery available a competitive necessity.

Dealers are disappointed but not discouraged by sales in recent weeks. They believe there is substantial business coming sooner or later. They expect many customers will find more cash than they had anticipated as the year closes. And they are certain that much of this cash must go for tools.

## Coming Sale

Heavy machine tools, toolroom and sheet metal machinery will be among the equipment auctioned on Dec. 2 at the Parker-Harrigan Co., (former Sessions Foundry), Route 6, Bristol, Conn.



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**I—16" x 22" COLD MILL.** 2-high.  
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**2-28 3-HIGH ROLL STANDS.**  
**I—New 16" BAR MILL.** one 3-high roll stand, pinion stand.  
**I—New 12" BAR MILL.** four 3-high stands, pinion stand.

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**I—9" BAR MILL.** 3-high.  
**I—Waterbury Farrel 6 head tandem red mill** for cold rolling wire.  
**2—MORGAN TRAVELING TILTING TABLES** for 24" 3-high bar mill.  
**I—34" x 192" ROLL GRINDER.**  
**I—30% x 128" ROLL GRINDER.**  
**2—65-TON ELECTRIC MELTING FURNACES, TOP CHARGE,** with all electrical and mechanical equipment, including 15,000 KVA and 13,333 KVA transformers.  
**I—New top-charged ELECTRIC MELTING FURNACE** with 2000 KVA transformer.  
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**I—FLYING SHEAR FOR BARS,** Morgan, up to 1/2" square, moving at speeds up to 1800 FPM.  
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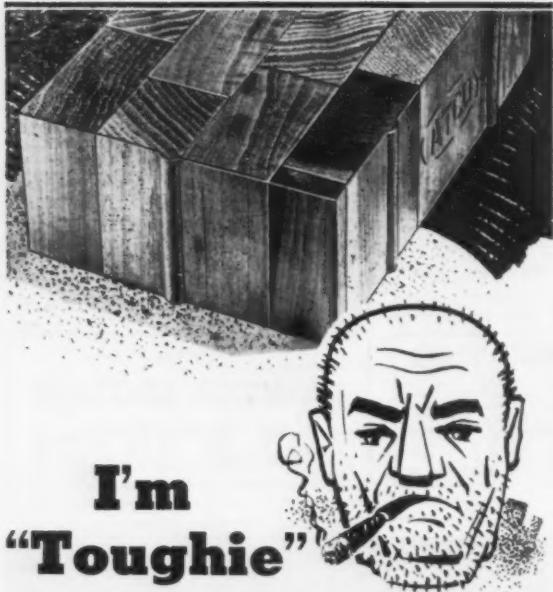
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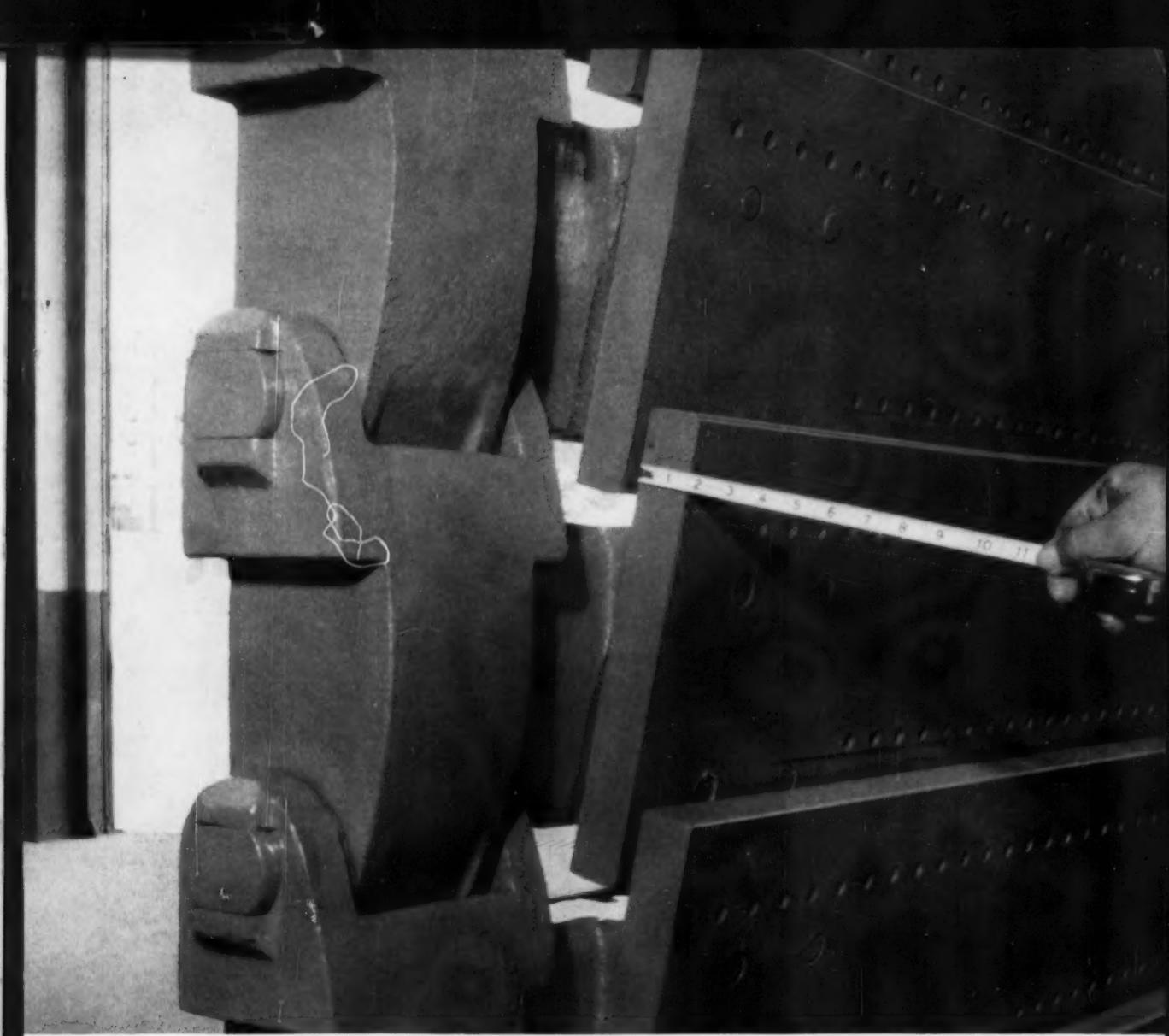
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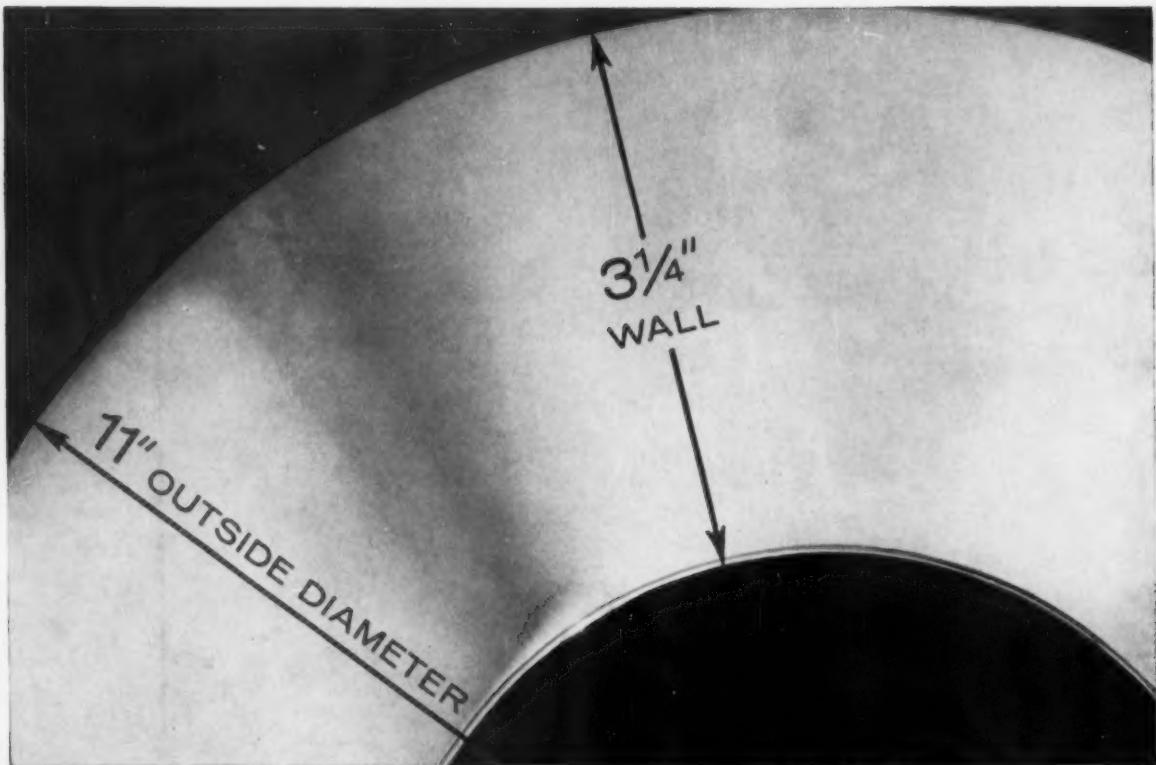
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